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HOME ECONOMICS FOR BOYS[1]

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IN THE past, education for homemaking has been mainly for girls. In a few schools, boys' courses were started about twelve years ago, but many others have hesitated in attempting this experiment. Since homemaking is one of the most universal interests and since it is normally a partnership affair, should not every boy have the opportunity to prepare for and realize the responsibilities of family life?

The modern home is ceasing to be a place in which girls and boys may learn the science of homemaking. A century ago, or even later, the home was self-sufficient, and in it the sons as well as the daughters of the family obtained a working knowledge of the arts of homemaking. The information needed for home and family life was handed down from mother to daughter, from father to son. Today, rapidly changing economic and social conditions make the traditional answers to many family problems no longer valid. How best to plan the family budget and how to buy intelligently have become matters of much uncertainty. The relation which the home bears to educational institutions, to health-maintaining agencies, to our financial organization as it affects the home, and to the varied means available for family recreation, all demand a more thorough and intelligent understanding and study than the average home is qualified to give. Here is where the home economics classes in our schools can and do function. I believe we will agree with Starrak (1) that "the ultimate objective of all homemaking courses, whether for boys or girls, is the establishment of happy, satisfactory homes."

As regards what mothers desire as the outcome of such a course, one of them reminds us that the well-being of a home depends not so much on money and equipment as on the atmosphere of law and order and cheerfulness. She says (2):

> Teach all you possibly can to boys and girls of the necessary mechanics of housekeeping, lift it out of drudgery into joyous service; but above all, teach them that to establish a home is an infinitely greater art than the most meticulous one of housekeeping and that a builder of character is doing a nobler piece of work than the builder of the most exquisite bit of architecture.

So popular had home economics for boys become by 1930 that the United States Office of Education survey showed it was being taught in the schools of 42 states to over 7,000 boys. A survey of developments shows that in almost all schools where the work has been successfully established, the homemaking courses for boys have come out of a request from the boys themselves and have been evolved to meet the boys' needs with help and suggestions from the boys. This is the case in the following instances.

[1] Based on a talk given before the home economics division of the Missouri State Teachers Association, November 13, 1936.

In Los Angeles, since 1924, three types of classes have been maintained: vocational, preparing boys for chefs and chefs' assistants; development classes where boys and girls together prepare school lunches; and boys' classes of a general nature.

In Denver, homemaking courses for boys have been offered in the high schools since 1925, and their popularity brought about a demand for similar work in the junior high schools. The high school course is called Applied Economics for Boys; the junior high school course, Problems in Everyday Living; and it is felt that "home economics work for boys has come to stay." Helen Burnham (3), who has taught it there for eight years, gives as the aim in teaching home economics to boys: "to help the boys to be more intelligent and appreciative members of their homes now as well as to help them to look to their homes of the future."

Anna Tjaden (4), director of public schools in Peoria, Illinois, says that the purpose of their course for boys is not to develop skills but to develop an appreciation and a better understanding of the importance of homemaking in the development of the individual; that the boy should know the great part the home plays in the citizenship of the community and the nation, should realize something of the labor and skill required in the household, should have a better understanding of the great number of processes involved in maintaining a home, should be intelligent in the use of the family income, should have a knowledge of foods in relation to health, should be better able to select and care for his clothing, should have an appreciation of the social relationships of the home.

Tulsa has the distinction of making a year's course in home economics a requirement for senior boys (5, 6). In 1925, 251 of Tulsa's boys were registered in this course, which did not take the place of a science, economics, nor any other requirement but stood on a par as to credit and dignity with any other high school subject. It is called Home Crafts for Boys and is the outgrowth of a questionnaire sent by the home economics department of the city schools to the parents of the boys in the Central High School. Practically all of the 500 questionnaires were returned with such enthusiastic endorsement of the idea that the plan of home economics instruction for boys was adopted by the school officials for the senior high school and later installed in the Central High School.

At the 1934 meeting of the American Home Economics Association, five representatives of the Bedford (Ohio) high school home economics class for boys were present, accompanied by their teacher, Miss Daisy Stackhouse. The daily convention news sheet carried several feature articles about the boys and their course. To quote:

> The boys are all high school seniors who have been taking a regular foods and nutrition course almost identical with that taught to the girls. It is not a compulsory course. In fact, so many boys wanted to take it that only those with high grades were admitted. It is a privilege to take this course in the Bedford High School. The boys by no stretch of imagination could be called sissified. On the contrary, they are very masculine and athletic. Five out of eighteen are letter men and almost every boy has been out for baseball, football, track, or basketball.

Their teacher was described as enthusiastic over the progress of the home economics courses given to boys and thoroughly convinced that it is an important work for teachers to develop. This demonstration of interest in home economics by those boys undoubtedly widened the interest in including boys in the home economics program.

In some of the advanced schools of the country where an integrated program is carried on, homemaking instruction is given

to mixed classes, for example, in the demonstration school at Teachers College, Columbia University. Ivol Spafford (7) recommends that home economics be offered to boys and girls alike in the first six grades, with specialized courses for boys and girls of high school age. She believes that in educating for personal living, home economics has much to offer boys and men as well as girls and women. A new home economics textbook (8) is designed to help both boys and girls of junior high school age acquire the right attitudes toward homemaking.

Miss Anna E. Hussey, supervisor of homemaking in the Kansas City public schools, believes that the homemaking partnership will be more successful when each member of the firm knows something about the other's job. The first opportunity offered to Kansas City boys to learn the art of homemaking came six years ago when through the co-operation of the manual training and homemaking departments a boy and girl exchange unit was tried out in three elementary schools—the Ashland, the Greenwood, and the Yeager (9). By this plan, for a two weeks' period "the boy invades the homemaking department while the girl takes over the shop." The experiment proved so successful that such courses are now given in many of the other elementary schools. When at the conclusion of the course the boys at the Greenwood School were asked what they had learned that was useful to them now, they mentioned table manners, correct setting of the table, and how to prepare food, and said they would like to have had more meal preparation, cake baking, and some sewing.

The interest aroused in such a course in the elementary schools led to a demand for further homemaking work in the high schools. Our course for high school boys was started as an experiment for one semester three years ago at East High School. Thirty boys signed for it. The *Kansas City Star* carried a feature story about this new venture, with a picture taken of the class at work in the foods laboratory. At the end of the semester, the boys who were most interested were allowed to continue the work in classes with girls for another semester.

The next year, the request for a similar class for boys was repeated, and a one-semester course was carried on. By this time, Miss Hussey felt that a full year's work should be developed. During the following summer, with the kindly advice of Miss Anna E. Cooley of Teachers College, Columbia University, I worked out a tentative course to cover two semesters, and this has developed into the accredited course now offered to boys of the Kansas City high schools. The textbook used is *The Boy and His Daily Living* (3).

The athletic coaches at East High School believe in the course so thoroughly that they have urged their athletes to take the work in order to learn about a proper training diet. The principal also highly approves the course. When the 32 boys in the present class, mostly juniors and seniors, were asked why they enrolled, their replies were as follows: 7 want to learn the correct diet for training in athletics and how to be healthy; 6 want to use it at home, one, for example, because his mother works late, and he wants to get the dinner, and another because he would like to help his mother "when she isn't feeling good"; 4 plan to be chefs or chief cooks in a restaurant; 4 hope to use it in later life; 3 think it will be interesting and useful in a general way; 3 wish to improve their table etiquette and know how to act properly in different social situations; 3 expect to use it on camping trips or as bachelors later on; 2 expect to use what they learn in their scout work.

Excerpts from our course of study in home economics for boys are:

Unit I. "Let's Eat Breakfast," with the problem: What does a boy need to know in order

to plan, prepare, and serve a breakfast? (This includes the preparation of foods suitable for breakfast and the serving of a breakfast when guests are entertained.)

Unit II. "The Day's Food in Relation to the Boy's Health and Growth," with such problems as: (1) What part does food play in body development? (2) How can you find out the kind and amount of food you need for health? (3) How are the different foods digested? (4) How can we know the effects of an inadequate diet? (5) Since good health is dependent on good food, how can you judge whether a meal is adequate or not?

Boys like to cook. It is best to let them start with something in which they are interested and which they can do with a measure of success. In this way, they have an opportunity for creative expression, which, educators believe, helps them to attain greater emotional stability. The baking of a crisp, golden brown waffle brings a feeling of satisfaction which is educationally significant, besides filling the vacuum in the hungry boy's stomach. Out of their cooking and serving experiences come additional knowledge of sanitation and neat work habits, practice in good table manners, and a curiosity to learn more about foods and how they affect growth and health.

Other units included in the course are: "When We Entertain," an excellent time to introduce social usage; "Clothes Make the Man," dealing with the selection, care, and repair of clothing; "Stretching the Dollar," in which the management of the personal budget and the family income are discussed; "Making the Most of Family Life," where family relationships are considered; "Emergencies in the Home," including first aid and preparation of an invalid's tray; "Making the Home Convenient and Attractive"; and "We and Our Neighbors," linking the home with the community.

To supplement the work, co-operation may be secured with local merchants for exhibit material in clothing, with a physician for matters of health, with a lawyer for the legal aspects of the home, and with local grocery stores, dairies, meat markets, and bakeries for firsthand information about marketing and methods of food production. Plenty of pupil activity may be provided through work in the laboratory, discussions, reports, the keeping of health charts, trips, and contact with outside speakers.

There is an originality and enthusiasm about boys that makes teaching them both enjoyable and amusing. Recently, when a boy had his fork held upright in cutting his food, I observed, as I glanced toward another boy across the table, "Duane is holding his silver nicely." "Yeah, streamline!" drawled Billy, a comment that really did point out the difference in technique. High school boys are sincerely interested in such questions of social usage as forms of introductions, table etiquette, manners in dating and dancing, behavior when in the public eye, what to do in traveling, and how to dress for various occasions.

In the foods laboratory, the boys wear butchers' linen aprons and chefs' caps which give them a professional air. Cleanliness, both of person and work habits, is stressed. They take pride in scouring and cleaning their kitchen equipment. Efficient dishwashing methods with the idea of saving motions are practiced in the laboratory. One of the boys, in telling me how at a Hallowe'en party, after the refreshments had been served, the boys were invited into the kitchen to help the girls wash the dishes, said he was glad that he could wash dishes so scientifically.

The tie-up of the work at school with the home is important. Some suggested pupil activities listed in the course of study are:

Make cocoa for one week for yourself and brothers and sisters and report to class.

Demonstrate to your small brother or sister the proper way to handle silver at the table.

Tell a funny or entertaining story each night for a week at the dinner table.

Brush your shoes every day.

Buy a small bank for your younger brother and encourage him to put his pennies and nickels in it.

If possible, a check-up with the mothers should be made to see how well the plan is functioning and whether the training the boys are receiving is actually carrying over into the home. A story which the mother of one of my last year's boys told me when I saw her recently pleased me very much. When the crisp fall days came, Albert, hungrier than usual, wanted some doughnuts. In fact, he wanted to make them. She told him she could not afford to buy the fat to fry them. Undaunted, Albert rustled a job raking leaves and earned fifty cents to buy the lard. His mother had dough for the doughnuts mixed when he arrived home from school the next day. He finished the job of rolling and cutting and frying the doughnuts but was not fully satisfied. He wanted to do the whole job himself. So the next Saturday morning his wise mother turned over the kitchen to Albert. He was thrilled to be left with the full responsibility of the doughnut job. His mother is justly proud of his accomplishments and his fine attitude in the home.

While training for chefs is not the objective of this course, it is helpful as a foundation for further training. One boy who was very timid and had never been enthusiastic over his high school work became interested in cooking as a career. He succeeded in his foods class so well that we recommended him to Fred Harvey's line of eating houses.

After three years of experience in teaching home economics to boys, I am confident that it is truly worth while. As homemaking teachers, "may we not feel that with such courses in all high schools, our boys will not only be founders of better American homes in the future, but more capable, thoughtful members now with a readiness to assume a real partnership in this greatest of all professions—homemaking!"

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THE COST OF FOOD AND THE ADEQUACY OF INCOME

VIRGINIA BRITTON[1]

HOW adequate as family incomes are minimum wages set up by government agencies? Because we know more about the direct relations between diet and health than about those between consumption of other necessities and health, a study of the cost of an adequate diet seems to be a good point from which to start in appraising the adequacy of family incomes. The aim of the study here described was to determine the lowest cost at which a family could have an adequate diet and to ascertain if wages as set by the W.P.A. and N.I.R.A. in Akron would provide an adequate diet plus a minimum for other necessities. The Stiebeling and Ward "minimum-cost adequate diet" was chosen as the dietary standard rather than their "restricted emergency diet" because, to quote Stiebeling and Ward,[2]

> The restricted diet for emergency use provides approximately the minimum requirements of the body for the various nutrients, but allows little margin for safety. It represents good food selection when a fully adequate diet is beyond reach, but is not recommended for use over indefinite periods.

The actual cost of the minimum-cost adequate diet for one week in Akron, Ohio, was compared with (a) the amount allowed for food each week by Summit County (in which Akron is located) Relief; (b) the wages paid to W.P.A. workers in Akron; and (c) N.I.R.A. minimum wages set in the rubber industry.

The first family selected consisted of five persons, including children aged 3, 5, and 13 years. The adults were considered very active. This seemed reasonable, since W.P.A. workers are frequently engaged in street construction or clearing land for parks and building sites and women with low incomes and three growing children would probably be busy with household tasks many hours in the day.

Prices for the minimum-cost adequate diet were secured in two stores of the type patronized by low-income families, one a neighborhood independent and the other a chain. As far as possible, identical brands and qualities of goods were priced and bulk prices were taken for articles such as flour and sugar. Whole milk and white sugar were used in the diet rather than the less customary substitutes (dried milk, evaporated milk, molasses, heavy cane or sorghum sirup) suggested by Stiebeling and Ward as possible means of reducing cost.

Prices were secured on January 21, 1936. The cost of the selected diet for one week in the two stores is given in the table. It totaled $8.08 in one store and $8.90 in the other.

The weekly budget which was used by the county Relief for families of five during January 1936 was as follows:

- $5.90 for food. (Food checks were given, but no food was given free.)
- $2.50 for fuel and light. (Relief families were expected to earn this amount, but if that was impossible, coal and kerosene were given by the Relief.)

[1] The author is indebted to Miss Elsie M. Maxwell, University of Idaho, for assistance in planning the study and to Miss Margaret G. Reid, Iowa State College, for suggestions in analysis.

[2] HAZEL K. STIEBELING and MEDORA M. WARD. Diets at Four Levels of Nutritive Content and Cost. U. S. Department of Agriculture Circular 296, 1933, p. 31.

$2.15 for clothing. (None given to family unless absolutely necessary.)
$0.75 for miscellaneous items. (Not given the family.)
$12.50 for rent per month. (Relief never paid rent except for one month if it was a case of eviction, when the maximum was $15.)

The relief food allowance for the week was $5.90, or $2.18 less than it would cost to purchase an adequate diet in the lower-cost store. Counting four and one-third weeks to a month, the total budget as planned by the relief agency was $61.47. The only way a family could have more than $5.90 a week for food would be by receipt of gifts or by earnings over and above the amount necessary to pay for fuel, light, clothing, and rent. At the time the study was made, the relief ruling was that a family of five having an income of $14.30 a week, or $61.97 a month, was ineligible for relief. There is some likelihood that some families actually having a lower income were not declared eligible. It seems highly probable that much of any money income earned by relief families who were given only food checks would go to items other than food. It would be of interest to know at what point in the family earning the relief agency began to cut the food allowance below $5.90 a week and whether (as seems very unlikely) relief families with some earnings could ever reach the point of having enough to purchase a minimum-cost adequate diet, namely, $8.08. In any case, in the setting up of the relief food allowance, there appears no recognition of the cost of a standard diet such as the one set up by Stiebeling and Ward.

Cost of minimum-cost adequate diet for family of five

FOOD MATERIAL	QUANTITY	COST AT CHAIN CASH-AND-CARRY STORE	COST AT INDEPENDENT SERVICE STORE
Flour, cereals	15 lbs.	$0.89	$0.84
Bread	10 lbs.	0.70	1.00
Total		1.59	1.84
Milk	28 qts.	2.80	2.80
Vegetables and fruits			
Potatoes, sweet potatoes	16 lbs.	0.32	0.38
Dried beans, peas, nuts	2 "	0.15	0.15
Tomatoes, citrus fruits	5 "	0.39	0.51
Leafy, green, yellow vegetables	6 "	0.28	0.34
Dried fruits	1½ "	0.12	0.15
Other vegetables, fruits	7 "	0.31	0.38
Total		1.57	1.91
Fats	4½ lbs.	0.77	0.81
Sugars	3½ "	0.25	0.26
Protein-rich foods			
Lean meat	5 lbs.	0.60	0.75
Eggs	1½ doz.	0.50	0.53
Total		1.10	1.28
Grand total		8.08	8.90

To be eligible for W.P.A. in January 1936, workers must have been on relief during the period May to November 1935. At that time, in Akron the maximum wage for W.P.A. workers, heads of families, on unskilled work was $55 a month. How would families of five fare on this wage? Assuming that the families had to have fuel, light, clothing, and rent in amount equal to the relief budget, they would have a balance of $19.10 a month or $4.41 a week for food. This is $3.67 less than $8.08, the cost of the adequate diet. If W.P.A. workers spent $5.90 a week for food, as the relief budget allows, they would have $29.43 a month remaining for other expenses, and the relief budget allows $35.90 a month. If the family paid the $8.08 a week necessary to get an adequate diet, it would be spending 64 per cent of its income for food and would have only $19.99 a month for rent, light, heat, and clothing—a sum far below the $35.90 allowed by the relief budget.

How would families of two adults fare on the W. P. A. wage? The cost of the minimum-cost adequate diet as planned for two very active adults according to Stiebeling and Ward was found to be $3.76 a week at the lower-cost store and $4.21 at the

other. Monthly expenditure for an adequate diet at the lower-cost store would be $16.29 or 30 per cent of the total income of $55. Thus, the W.P.A. income, which could not provide an adequate diet plus a minimum for other expenses for a family of five, appears to be sufficient for an adequate diet and minimum living expenses for a family of two.

Did the N.I.R.A. wage requirement make possible an adequate diet? Codes of the tire and rubber footwear manufacturers set a 36-hour week as the maximum and 30 cents as the minimum hourly rate. Thus, a man working the maximum number of hours at the minimum hourly rate might earn $10.80 a week, or $46.80 a month. If the family of five spent what the relief budget allows for items other than food, it would have $10.90 a month for food, or $2.51 a week, which is $3.49 less than the amount given by the Relief and is $5.57 less than the cost of an adequate diet. If the family spent $5.90 a week for food, as allowed by the Relief, it would have $21.23 remaining a month for other expenses, contrasted with the $35.90 allowed by the Relief for other expenses. If the family spent the $8.08 a week necessary for an adequate diet, it would have only $11.79 a month left for other expenses.

If a family of two adults having a monthly income of $46.80 spent $16.29 necessary for a minimum-cost adequate diet, it would be spending 35 per cent of its income for food. Thus, the N.I.R.A. wage, though it would not give a family of five an adequate diet plus a minimum amount for other expenses, could provide these for a family of two.

Using $8.08 as an amount sufficient to purchase an adequate diet for a family of five assumes that people on these economic levels will have the knowledge and opportunity to buy qualities and varieties which will yield maximum returns with minimum amount of waste. Experience shows that people on these income levels seldom get far enough ahead to use cash accounts or to take advantage of quantity purchases or sale prices which are important means of lowering food costs.

The satisfactory use of such standard diets as a measure of adequacy of a given food allowance depends on the extent to which foods (a) provide needed nutrients; (b) are acceptable in view of family circumstances, customs, conventions, and prejudices; and (c) draw upon the cheapest source of nutrients in view of market price. In so far as Stiebeling and Ward figures present a minimum-cost diet which fulfills these conditions, it is apparent that in setting up relief food allowances, W.P.A. wages, and N.I.R.A. minimum wages in Akron, a recognized dietary standard was not met. Future arbitrary standards set up for relief and minimum wage purposes might more justly be based on the cost of an adequate diet plus minimum amounts for other expenses and taking the size of the family into consideration.

PROBLEMS OF RESIDENCE HALL MANAGEMENT[1]

MELISSA HUNTER

AS A starting point, I shall assume the following:

1. Good living conditions for students are of fundamental importance for their educational development.
2. Supervision of these living conditions, especially in the case of undergraduate students, is not only desirable but necessary for the best results.
3. The well-planned and efficiently managed residence hall is an economic asset to any campus; it should attract students and make a definite contribution to their informal education.

If these assumptions are true, then to realize the objectives they imply, residence halls and residence hall management must provide:

1. Buildings well planned and equipped for efficient and economical management
2. Living quarters which are adequate, attractive, comfortable, sanitary, and suitable for the group
3. A nutritionally balanced diet with foods well prepared, palatable, and attractively served
4. An environment conducive to scholastic attainments, free from unnecessary disturbances and harmful distractions, and allowing opportunity for privacy
5. Organized social life, both formal and informal, for training the individual in adjustment and cooperation with a living group other than his own family
6. Opportunities to participate in creative leisure activities
7. Adequate reports and records for successful financial control
8. A well-trained staff in all departments

These provisions are so simple and so generally taken for granted that it would seem unnecessary to state them, were it not for the fact that it is only when directors of dormitories have successfully met them that they find the solutions to their management problems.

The problems of management are many and complex. They begin when the idea of the building is conceived and continue on through the life of the institution. The plan for a residence hall is more complicated than for the regular classroom building and needs very careful consideration. This building must serve as the student's home while he is in school and at the same time be economical to administer and maintain.

When a residence hall is to be constructed, a building committee is usually appointed to formulate plans and decide on building arrangements. The director or manager of dormitories must have the privilege and the responsibility of serving on this committee. Since the other members may not have the training or experience necessary to select the best plans, the director must be on hand to give information as needed. No one will be so concerned as she with the details of the plans, and she must look out for those parts of the building which will not interest the committee and yet count in efficient management.

It is not at all unusual for the completed plans to call for more funds than there are at hand, and the decision as to what things are essential and what may be omitted without serious loss is exceedingly difficult and important. It is then that the director must be able to suggest what may be eliminated. To get the best results in this "elimination contest" it is advisable to make up lists of things in the order of their importance, such as:

[1] Presented at the meeting of the department of home economics in institution administration, American Home Economics Association, Seattle, 1936.

1. The items which must be included in the building at any cost
2. The items which are very important and should be included if at all possible
3. The items which can be eliminated or modified

If the question of elimination is handled in this way, the other members of the committee can more easily understand the relative importance of the items.

To avoid trouble, mistakes, and changes in the finished building, definite instructions as to style, size, and arrangements must be given to the architect; and the details must be checked by a competent person when the preliminary blue prints are under discussion. If the director has any voice in the selection of the architect, she should choose one who has had experience in planning residence halls and who has an appreciation of the inside of the building and its uses as well as of the exterior.

In setting up plans for a residence hall, one must be sensitive to what is appropriate for the campus to which it belongs. This means understanding the type of student for whom the building is built, the style of architecture prevailing in the other buildings, and the climate as it influences comfort.

A residence hall building program may affect private business in the community. Controversies and opposition may come from organized groups off the campus who feel that their existence is in jeopardy. Boarding houses, clubs, fraternities, sororities, may misunderstand the effect on them and give out false information. It is amazing the number of students and parents who believe anything about dormitories that a disgruntled person may tell them. They do not seem to realize that the college authorities are just as jealous of the institution's dormitory standards as of its classroom instruction. Antagonism against dormitories results from these controversies and breeds bad feeling among students required to live in them.

The members of the committee in charge of building expansions may not understand or sense the repercussions which a change in housing may cause among people who depend on the students for their livelihood. The relations between an educational institution and its neighbors are of real consequence and should always be as friendly and co-operative as possible. Therefore, it is the duty of the director of dormitories to anticipate any opposition which may arise from a proposed building program and see that it is handled in a manner to minimize misunderstandings and criticisms. Advance notice about changes of housing policies must be given to the public so that people can make their adjustments and not feel fearful and uncertain.

If the cost of the building is to be charged against dormitory earnings, the person in charge is entitled to know the proposed financial plan and the methods of payment, and she in turn must have the ability and training to interpret these in terms of management. We all know it is easier to plan the spending of money from a $400,000 bond issue for an attractive residence hall than it is to amortize the debt over a period of twenty years from dormitory earnings. Bondholders are looking to institutional managers to eliminate the dangers of ignorance and uncertainty in the financial management of the halls of residence and thus strengthen and insure the regular returns on their investments. Nothing gives the investor so much confidence as a successful financial statement of the business in which he has holdings.

The financial programs are likely to be set up on a close margin of profit based on high occupancy of rooms. In a program of this sort, vacancies caused by lowered registration present a difficult financial problem and cause financial loss. Every dormitory director knows the worry about keeping her rooms filled. One may say that financial success is merely the by-

product of well-conceived plans, but that may not ease the mind during financial depressions. Bond payments on buildings erected when prices are inflated are hard to meet when prices are down. During times of inflation, reserves should be set aside to take care of bad business. It is the responsibility of the director to see that provision is made in the budget for special expenditures such as extra replacements and repairs, as well as for reserves for the lean years.

A well-planned building does not insure the maintenance of good living conditions. Neither does it insure efficient, financially successful management. But it does provide an environment where one can work with greater ease and where the educational ends can be better served than in a poorly planned building.

After the house is planned, built, and occupied, the problems of personalities come into the picture. It is commonly agreed that direct supervision of housing and feeding arrangements for students is necessary. Yet young students leaving parental supervision for the first time do not always agree that they should be supervised. They find it difficult to understand why they are required to live in a certain place. They do not realize that this supervision will help them make the right transition from the close family life to the more independent life in a residence hall. Some well-trained person on the staff must be able to meet this situation to prevent the student from reacting against the environment and becoming a difficult citizen in his living group.

One cannot manage the physical side of the house and have no understanding or interest in the personality problems of those who live in it. If one could select the individuals in the group, there might be fewer personality problems. Where students of every type are forced to live together, there is bound to be need of adjustments. Much unhappiness and criticism of dormitories can come from the director's lack of interest or understanding. Students want to talk things over with someone. They want attention. They want to understand why things have to be as they are around the building. They get wrong ideas about standards in institutions. They may construe unrecognized homesickness, fear, and confusion as the effect of the dormitory environment. They may have expected to find life unpleasant in the residence halls; and any misunderstanding, unhappiness, or illness confirms their expectations. Even though the director does not have direct supervision over the personal problems in dormitory management, she must know something about them. She should recognize the problems the young student faces during the first year away from parental supervision. She should be able to advise a student on social conduct if the occasion arises. She should know how to initiate and organize a constructive social program.

The responsibility of providing an adequate diet has always been a major consideration. We recognize the close relationship between good nutrition and satisfactory scholarship. Where students and faculty have some understanding and appreciation of proper nutrition, a sympathetic attitude and interest may be easily aroused. When a student offers himself to an educational institution for four years of his late adolescent life and is required to live in a residence hall, then that institution is obliged to give him as good food, as well selected, as carefully prepared, and as attractively served as the budget will allow. The wise dietitian will spend her food dollar in a way that will not make her liable to adverse criticism. The human being is apt to have a critical attitude toward his food. Students in gossipy groups may give free rein to their imaginations if the dietitian has failed to serve meals which attract, satisfy, and nourish the individual.

No management can be efficient without

adequate financial reports and records. To be of greatest value, these reports must be up-to-date and easily accessible. If the director has a sufficient staff and keeps a complete file of records in her own office, she commands the information necessary for administrative control in all departments. Or, if all records are kept in a central business office, as is generally the case, the director must have access to whatever records and reports are necessary for efficient management. It makes little difference where the records are kept or who compiles the reports as long as the one who is responsible for the financial success has all the information needed. Unfortunately, the value of a residence hall is often judged by the financial statement. Therefore, the director in charge must be interested in her records and reports and keep adequate files so that the integrity of her business ability cannot be questioned.

Thus, the conclusion is reached that the residence hall is a complex organization with many and varied problems of management. The director must be trained in all phases of institutional and personnel management if she is to be successful in supervising and in co-operating with all the activities of the various departments.

WHAT'S NEW IN NUTRITION

MILICENT L. HATHAWAY

ALTHOUGH the past year has seen few startling discoveries in nutrition research, progress has been made on a number of baffling questions, and a summary of some of these may prove of interest. For convenience, those to be discussed may be grouped under four general heads: (1) the nutritive value of foods, (2) causes of differences in the amount of vitamins and minerals available in common foods, (3) methods of following foods to their ultimate storage or utilization in the animal body, and (4) mineral requirements of children and adults.

The nutritive value of spinach is an example of the first question. Elementary chemical analysis has shown that spinach is rich in iron and calcium, two elements of great importance in the animal body and both apt to be present in inadequate amounts in our daily diet; and so for many years it has been highly recommended. However, in 1933, Schlutz, Morse, and Oldham (1), reporting mineral metabolism studies on a number of infants, made the rather startling statement that dried spinach in the diet of the infants slightly decreased the retention of these minerals. Recently Macy and co-workers (2) from the research laboratories of the Children's Fund of Michigan reported that when children from 5 to 7 years old were fed 100 grams of spinach daily there was a definite decrease in the retention of calcium; and similar studies run independently by Fairbanks and Mitchell (3) at the University of Illinois, using rats as experimental subjects, showed analogous results. Further work in both laboratories has suggested that the negative results are due to the presence of relatively large amounts of oxalic acid in spinach which combines with the calcium and prevents its utilization by the organism. If the oxalic acid is present in amounts in excess of that combining with the calcium of the spinach, it combines with the calcium from other foods in the digestive tract and thus reduces the amount available for bone building and other bodily functions. Studies by Elvehjem and his co-workers (4) at Wisconsin indicate that the iron in spinach is only about 20 per cent available, but since this work has not been repeated in a second laboratory, judgment should be reserved until their results have been either contradicted or confirmed.

These facts should not condemn spinach for those who like it, as an occasional serving will have no detrimental effects; it is still considered a good source of vitamins A and C, and it acts as a source of roughage in the diet. However, it should not be considered as a good source of calcium or iron, nor should persons who dislike it feel forced to eat it for its nutritive value.

The work of Tressler, Mack, King, and Gould (5, 6, 7, 8) on the vitamin C content of vegetables illustrates progress on the second question, the causes of differences in the amount of vitamins and minerals in common foods. These workers are conducting a detailed study of the effect of variety, freshness, maturity, and soil on the ascorbic acid content of a number of common vegetables and the losses which occur through specific methods of preservation and cooking. In a study of spinach (5) they have found that the ascorbic acid content of spring spinach leaves is nearly constant through the growing period but

that a clay loam soil gives a product with a 50 per cent higher vitamin C value than a muck soil. Spinach stored at 1° to 3°C. (33.8° to 37.4°F.) loses its ascorbic acid very slowly, but if held at room temperature it loses about half its ascorbic acid in three days and practically all of it in seven days.

The work of these investigators on peas (6) indicates that the early small-seeded varieties contain nearly twice the ascorbic acid found in the late larger-seeded ones. As the peas mature, the percentage of ascorbic acid decreases. Peas in the pod held at ordinary room temperatures for six days lose their vitamin C potency quite rapidly, but there is almost no loss if they are stored at 1° to 9°C. for the same period.

Extensive studies on cabbage (7) show analogous results: The early varieties possess nearly twice the vitamin C of the late kraut varieties, and there is a more rapid loss of the vitamin on storage at room temperature than at 1° to 3°C. The results of tests made in cooking the cabbage are also of importance. About one-fourth of the vitamin C is lost in the first few minutes of cooking before the water begins to boil, and very little is lost thereafter, although a considerable proportion is dissolved in the cooking water. Even when the cooked cabbage is placed in a very cold refrigerator, it loses its ascorbic acid slowly; about half has disappeared at the end of two days.

Interesting studies have been made on the destruction of the oxidases present in vegetables by blanching them at 100°C. for one minute before freezing in order to retain the ascorbic acid content (8). The relative activity of these enzymes has been shown to vary greatly in different vegetables, but in all cases studied the blanching process is necessary to preserve the vitamin at the usual cold storage temperatures.

In regard to the variability in mineral content of foods, the workers in at least two laboratories may be mentioned, Davidson and LeClerc of the food research division of the United States Bureau of Chemistry and Soils and DeTurk of the department of agronomy of the University of Illinois.

Davidson and LeClerc (9) have shown striking variations in mineral content in the same varieties of spinach and kale grown under different conditions; for example, the potassium content has been found to change from 4 per cent to 7 per cent in spinach and from 3.4 per cent to 4.4 per cent in kale; the calcium content, from 1.3 per cent to 2.1 per cent in spinach and from 1.8 per cent to 2.4 per cent in kale. The variations for different varieties bought in the open market are much more marked, the content of these minerals being doubled or trebled. It may be mentioned that these experiments were reported before the studies by Macy and by Fairbanks and Mitchell on the availability of calcium in spinach.

Detailed studies on the effect of differences in acidity of the soil and use of phosphate fertilizers on the calcium and phosphorus content of grain and forage crops are being made under Dr. DeTurk's direction (10). Comparative results with a poor acid timber soil (pH 4.4) from Woodford County (Illinois), a good acid prairie soil (pH 5.4) from Livingston County (Illinois), and with this second soil limed (pH 6.4) have shown that at least in the laboratory the yield of wheat on the poor soil can be increased at least 6 times by using calcium metaphosphate as fertilizer; that the yield on the good soil, while 4.5 times better than on the poor soil, can be increased nearly 7 times by adding the metaphosphate. Liming the good soil gave slightly lower yields for wheat than the same soil unlimed. With the poor acid soil, the yield of sweet clover was practically zero but the addition of calcium metaphosphate produced a fair yield. However, the good soil (with higher

pH) showed double this yield even without treatment and 4 times higher with treatment. Good soil that had been previously limed (giving pH of 6.4) produced a yield 2.5 times as great as the same soil unsupplemented by calcium metaphosphate.

If yield were the only improvement, the work would interest only the farmer and the economist, but it interests the nutritionist to learn that similar if less striking results are shown in the phosphorus content of the plants. In work already completed, the phosphorus content of the wheat grown in poor soil treated with calcium metaphosphate was nearly twice as great as in plants grown on the untreated poor soil, and that of the clover was over two and a half times as great. Figures for calcium are not yet available. This work has been extended and has been carried out on a larger scale this past season, but the reports are still incomplete.

These studies on variations of vitamin and mineral content of vegetables and forage plants demonstrate clearly that we cannot depend too strictly on the available tables for the composition of foods, as these have necessarily been based on relatively few analyses. We need new tables based on analyses of samples representing as many differences as possible in variety, condition of growth, and methods of treatment, and giving the probable range of values.

The methods of following foods to their ultimate storage or utilization in the animal body have been greatly improved this past year. This has been done by fastening chemical tags to the molecules of specific foods and analyzing the tissues to determine the location of these substances in the body. For example, if deuterium (heavy hydrogen) is substituted for ordinary hydrogen in a fat in such a way that it is not easily removed—for example, by forming stearic acid 6–7–9–10 D_4 from linoleic acid by saturation with deuterium (D)—its position in the body of an experimental animal can be traced by chemical analysis of the tissues. By this means, Schoenheimer and Rittenberg (11, 12) have shown that at least in mice the greater part of diet fat, even when present in small quantities, is deposited in the fat depots before it is utilized. They have also followed the synthesis of fatty acids by mice on a diet rich in carbohydrates by raising the deuterium content of the body fluids. Simultaneous destruction of fatty acids on the same diet was demonstrated in other experiments by previously depositing fatty acids containing deuterium in the tissues and showing that they then disappeared at about the same speed as that in which they were deposited when the deuterium was present in the body fluids. These experiments are decidedly complex and can hardly be understood without reading the original articles.

Sinclair (13) has made somewhat analogous studies to determine the part played by blood phospholipids as fat transport mechanisms. He has fed cats a mixed glyceride prepared from olive oil, the fatty acids consisting of 85 per cent elaidic acid instead of oleic acid. If this elaidin is fed repeatedly for several days, as much as 37 per cent of the fatty acids of the plasma phospholipid is found to consist of elaidic acid. Thus, he has shown definitely that phospholipid serves as a mechanism for the transport of fatty acids to the tissues where they are burned. Since no elaidic acid has been found in the phospholipids of the red blood cells, he has concluded that the red cells are not used for phospholipid transport.

The importance of iron in nutrition may be cited as an example of the fourth group of problems. Work on iron metabolism in infants, children, and adults is being carried on in several laboratories; but this summary will be confined to studies on adults, particularly on women. It has been known for years that iron is necessary

for blood formation and that anemia is usually a condition of reduced hemoglobin and reduced number of red blood cells, and it has been emphasized recently that nutritional anemia, a condition of insufficient supply of available iron in the diet, is a condition extremely prevalent in women. The following studies are representative of the evidence being presented. Representative figures for erythrocyte and hemoglobin values are given by Osgood and Haskins (14). Female erythrocyte counts averaged 4.8 million cells per cu. mm., with a range of from 4.3 to 5.3 million in 90 per cent of their cases. For males the average figure was 5.4 million, with a range of from 4.7 to 6.1 million. For hemoglobin values, similar differences were noted. The average value for women was given as 13.7 gm. per 100 cc. blood, with a range of from 12 to 15.5 gm.; for men, an average of 15.8, with a range of from 14 to 18 gm. per 100 cc. blood. However, these are not necessarily optimal values, and recent experiments have shown that the lower values for women are probably due to insufficient intake of this very important element.

Leverton and Roberts (15) have reported rather extensive studies on individual variations in hemoglobin and red blood cell counts on four women over a period of about five months. In general, the women showed day-to-day variations in both hemoglobin and red cell counts with occasional sharp rises and drops. The average standard deviation for red blood cells was 0.3 million, for hemoglobin 0.9 gm. They found no measurable relationship between this variation and occasional loss of sleep and no definite, consistent effect of menstruation on the daily values throughout the menstrual cycle. However, they did find that the daily addition to the diet of 5 mg. of iron as ferric ammonium citrate over and above the standard 10 to 15 mg. intake did increase the hemoglobin value about 1 gm. per 100 cc. of blood, and that it fell again when the supplement was discontinued for a month. Their work indicates that single determinations of hemoglobin content and erythrocyte count do not necessarily give a true picture of the blood condition of the individual and that a number of determinations should be run before clinical diagnosis is made.

Ohlson and Daum (16) have recently reported on the iron metabolism of three normal women on self-chosen diets. Over a period of two and a half months their average daily iron excretion was slightly in excess of the amount ingested, a loss of 1.2 mg. on an intake of about 14 mg. per day. The negative balances seemed to be due to the loss of iron in the menstrual blood and indicate clearly that the 14 mg. per day level is certainly not in excess of the average requirement. In their normal subjects they found menstrual losses of 18 to 42 mg. iron, and in women with abnormal flows the loss may be increased to several times this amount. The study also indicated that there is a labile mechanism regulating the iron balance which is related to intestinal function, since the inclusion of string beans in the diet of one of the women was observed to cause some intestinal disturbance and to increase the negative iron balance.

Farrar and Goldhamer (17) have reported that the normal adult male requires not more than 5 mg. iron daily, but they also state that the menstrual loss in women results in an appreciable deficit unless preceded by a storage of iron.

Widdowson and McCance (18) have reported a study of the iron intake of 63 men and 63 women of the English middle class. They give the average daily intake of available iron by men as 10.8 mg., by women as 7.9 mg. They also consider that the lower per cent of hemoglobin found in women is due to insufficient intake, since they found

that the addition of 100 mg. of iron per day as ferrous sulfate or ferric ammonium citrate did not alter the hemoglobin in men but did increase the values in women by from 4 to 17 per cent.

During pregnancy and parturition an increased iron intake is even more important as it has been shown that the fetus is supplied at the expense of the tissue of the parent. Moreover, because milk supplies little iron, the iron supply of the fetus must be adequate for the needs of the infant until supplementary feeding is begun.

As to the best sources of iron, probably more work has been done by the group at the University of Wisconsin (19, 20) than elsewhere. According to them, the best food sources are probably liver, heart, lean meat, eggs, such dried fruits as apricots and prunes, leafy vegetables, beans of all types, and molasses; but to insure an adequate intake of iron, supplements of iron salts such as ferrous sulfate, ferric chloride, ferric ammonium citrate, or ferric pyrophosphate have been suggested. The soluble ferric pyrophosphate has been recommended because this form of iron has been proved to be 100 per cent available and it is less astringent than some of the other salts.

The investigations reviewed here include but a few of the problems that are being studied in nutrition laboratories. The nutritive value of other foods; the purification, chemical nature, and physiological effects of the more highly purified vitamins; the control of the toxicity of fluorides, selenites, and lead products; and other mineral requirements of children and adults are among some of the subjects which command the attention of an ever-widening group of workers. The interest of physical chemists and biophysicists, as well as physiologists, organic chemists, and biochemists, is being centered on these problems; and the next few years should show extremely valuable developments in nutrition research.

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SIGNS OF THE TIMES

HOME ECONOMICS IN THE KANSAS CITY SCHOOLS

ANNA E. HUSSEY

The Kansas City, Missouri, public school system embraces elementary and junior and senior high schools, a trade school each for boys and for girls, a junior college, and a teachers' college. The elementary school system is a seven-year one, the seventh grade corresponding to the eighth year in other systems. In all but the trade school for boys and the teachers' college, courses in home economics are offered.

In 1901, the Board of Education ordered all necessary materials for sewing to be purchased for use in the elementary schools for Negroes. This is significant, as no provision had yet been made for white children of elementary schools. No teachers with special training for this work were employed at this time. By 1906, the work had been extended into the white schools, and it was thought necessary to appoint a supervisor. At the close of the school year in 1907, ten centers had been equipped. Pupils from adjacent districts were scheduled to come at stated times for lessons in cooking and sewing.

At present, there are 8,366 girls in home economics classes in Kansas City, and practically every elementary school has its own equipment. In the sixth and seventh grades, two quarter-day periods every week are devoted to home economics.

Since the girl of ten or twelve usually is called on to assist in the care of the small children in the family, provision is made to help her by inviting the school nurse into the home economics classes to teach the correct care of cuts, burns, stubbed toes, and such common mishaps as come to small boys and girls. Classes visit the kindergarten to learn the kinds of games and stories best adapted to young children. In the foods classes, suitable meals and after-school lunches are discussed and prepared. Thus, the older sister may become a real help to her mother in caring for the younger children of the family.

"We learn to do by doing." Pupils learn correct table manners and good food habits by serving and eating the foods they prepare. The same principle applies in teaching the fundamental stitches if they are used on garments for which there is a real felt need. Getting the necessary equipment—aprons, caps, towels—ready for use in the foods laboratory supplies sufficient incentive. The co-ordination of head, hands, and feet in learning to use a sewing machine is much more readily acquired and mastered when this skill is to be applied on an attractive, bright-colored garment.

In 1930, an experiment known as the "Exchange Unit" was started in the seventh grade. In this unit the girls work in the industrial arts shop and the boys in the home economics department for a period of six lessons. The girls are taught some of the simplest of necessary household mechanics, such as mending an electric iron cord, putting a new washer on a leaky faucet, and turning window shades end for end. Some of the learnings for the boys are to prepare a simple breakfast, to make introductions, to partake of refreshments in an acceptable manner when attending a party, and to learn and practice good table etiquette. Live situations are set up for these experiences.

At first, this experiment was tried in

three schools. Each lesson was carefully planned and closely supervised. Teachers, principals, and superintendents approved, and now many schools are giving the course. With the completion of the revision of the elementary home economics course now in progress, this unit will be included as a definite part and given a special time allotment.

The five junior high schools, one of which is for Negroes, provide for two years in a wider field and on a higher level of learning. The home economics courses for these schools offer additional experiences in the choice, preparation, and serving of foods.

A like condition exists in relation to clothing. The care, upkeep, selection, and making of simple garments provide a certain degree of independence in attacking similar problems even though a student should not have opportunity for advanced work.

With the opening of the Manual Training High School in 1907, there was conceived the idea of giving pupils an opportunity for all-round training and development by providing for the motor-minded as well as for those inclined toward the usual academic subjects. Since the ultimate vocation for girls was that of homemaker, all girls were encouraged to enroll in the domestic science and domestic art classes. The expression of creative ideas through the hands by using the mediums of foods and clothing was to become a reality and not just wishful thinking.

The regular senior high school curriculum offers three years in foods and three in clothing, with one point credit allowed for each year's work. A student completing either the whole or a part of each subject has had opportunity for giving expression to creative ability in a very substantial way.

When the depression appeared, our Board of Education was unable to decide whether one department was more important than another. Happily, none was discontinued to meet the lessened budget, but all departments shared in cutting expenditures to the minimum and gave their best efforts toward meeting the needs of overcrowded classes. While these were trying times, out of them came many fine things, one of which was the emergency nursery schools. These were housed in school buildings. The girls in home economics departments in adjacent junior and senior high schools participated under the direction of the teachers in the care of these children. In this way was presented an unusual chance for acquiring a knowledge of many of the physical and emotional needs of little children. We are looking forward to the time when such training may become a permanent part of our course.

In the senior high schools, training in child care, family relations, social practices, skills, and appreciations is offered to enable students better to assume their places in the scheme of life and to carry on in an acceptable and satisfying manner.

To be well educated, one should be able to perform well the activities in which one participates daily. Since living in a family, eating daily meals, wearing clothes, associating with friends, and enjoying recreations are phases of every person's life, boys as well as girls are asking for courses that will help them to perform these daily activities in a manner that will be profitable and pleasant.

For three years, one of our high schools has given a separate course for boys, and next year similar classes will be organized in other schools. (See page 289.)

Junior College, founded in 1915, included home economics in the first roster of subjects. This department has served a threefold purpose in offering, first, courses at college level; second, courses in institutional cookery (the cafeteria is under the management of the home economics

teacher); and third, courses in dietetics for nurses in training.

The Jane Hayes Gates Institute, a trade school for girls, requires each of its 300 students to take a general course in home economics.

The University of Kansas City is an organization separate and apart from the public school system. It was opened in September 1933, and at the beginning of the second year, courses in home economics were offered. Growth and interest in this department have been so rapid that plans are now under way to provide a major in this field. A departure was made in furnishing the clothing laboratory with regular house furnishings. These provide a homelike atmosphere quite different from the usual classroom and consequently make the laboratory an alluring as well as an efficient place in which to work.

The Seven Cardinal Principles are recognized as vital objectives of education in the Kansas City schools. The home economics program contributes in some measure to all these principles and in a large measure to four of them: worthy home membership, health, wise use of leisure, and ethical character.

Believing that the application of these principles will greatly aid in preparation for living as well as in making a living, our teachers, under the competent guidance of the director of curriculum and the advice of the supervisor, have endeavored to incorporate these principles in the courses of study being taught in the Home Economics Department.

PROGRESSIVE EDUCATION ASSOCIATION CONFERENCE

HAZEL P. ROACH

The annual conference of the Progressive Education Association in St. Louis, which followed the National Education Association's meeting in New Orleans (see page 313), was a fitting climax to the educational fortnight in February. The central theme, "Educational Foundations for Democratic Living," attracted more than fifteen hundred educators from all parts of the nation.

At the eight general sessions, significant high lights in contemporary social, economic, educational, political, moral, and scientific theories formed the basis for the twenty-two discussion groups which held double sessions on Friday. Although it was highly desirable to attend the second session of the chosen discussion group, many members expressed a desire to have been at least triplets for the day that they might have benefited from other group discussions, including those on guidance, curricula, teacher security, elementary school activities.

More than fifty home economists attended two group discussion meetings on "Education and Home Living" led by Ivol Spafford. The first discussion centered around social trends and their meaning in home living, while the second session had to do with what should be taught, where, how, and by whom.

Six groups of school children from schools in and near St. Louis gave class demonstrations on Saturday morning of the various arts and sciences in their schools.

The possibilities and advantages for greater American co-operation with the international New Education Fellowship had a prominent place on the international luncheon program, with discussion of the need for forming strong state and district organizations to fulfill more adequately the national purpose. The annual dinner meeting not only further developed the conference theme but most appropriately paid honor to Dr. William Kilpatrick in recognition of his distinction in the field of education and his friendship toward thousands of students.

The International Art Exhibit, which comprised work done by pupils from all parts of the world, including America, had been on display last summer at the Cheltenham conference of the New Education Fellowship.

The American Home Economics Association had a booth among the exhibits, with Keturah Baldwin in charge. It not only included the usual publications but introduced to many visitors for the first time the set of portfolios of simplified materials in child development and family relationships prepared by Mrs. Grace P. Hudson.

The scope of the conference prevented its members from hearing all that took place during the crowded three days, but the Progressive Education Association has brought together complete transcriptions of important papers and reports in five Progressive Education Booklets which are to be published by the American Education Press, Inc., 400 South Front Street, Columbus, Ohio, and sold for 25 cents a copy, or all five for $1. The addresses delivered at the conference will not be printed elsewhere.

A PROGRAM OF EDUCATION IN FAMILY LIFE

ZELTA RODENWOLD

As a step toward developing a comprehensive program of family education in Portland a committee was appointed by the Oregon Home Economics Association to study possibilities. This committee has reported a plan which has the approval of the home economics education service of the United States Office of Education. It includes:

1. Intensive course for high school students in homemaking which would provide broad education in family life, including directed home projects during each year under well-trained teachers

2. Co-operation with teachers of literature, biology and other sciences, social studies, music, and art to plan ways in which certain aspects of their courses may include a consideration of family life at all age levels

3. Co-operation with the home economics supervisor and teachers of home economics in the elementary and high schools to develop further the present program in family education

4. Development of lay-leader education groups for those whose organizations select them to lead informal group discussion of parents and youth

5. Setting up one or more nursery schools in connection with high schools as observation centers for parents and youth

6. Stimulation of courses at the university level for the training of teachers of family life during both winter and summer sessions

7. Development of a family consultation center which would provide service to individuals on problems of family finance, home management, child rearing, courtship, housing, etc., and refer persons to other services for family members available throughout the city

8. Co-operation with the visiting teachers and child guidance clinic in a teacher education program and in the general development of a broad program of education for family life

9. Co-operation with organizations and agencies in the city interested in a leader education program and in the development of better family life

In line with these plans, the committee recommends that the following persons be employed beginning in September 1937:

Teachers of an intensive course in homemaking who will satisfy the new vocational requirements for such courses for high school students

Teachers of nursery schools who might also teach some courses in child care and development to high school students

Teachers of methods of homemaking education at the university level

A co-ordinator of education for family life whose functions would be to co-operate with the supervisor of home economics in the development and supervision of No. 1 of the proposed plan and to promote Nos. 2 to 9, inclusive, of the same plan

Teachers who would function in a consultation center or, preferably, teachers employed elsewhere who would give part time to such a service

It is difficult to anticipate just how many of the committee's recommendations will be carried out, but the results will be watched with interest.

RURAL YOUTH IN ILLINOIS

CLEO FITZSIMMONS

Rural Youth is the name which five thousand young men and women from rural communities in Illinois have chosen to distinguish their numerous county and local groups from others who are carrying educational or recreational programs for young people in the state. Its programs are planned for young people from rural communities who are out of school, above 4-H Club interest, and not engaged in business or homemaking for themselves. Committees of members, meeting with farm and home advisers and extension specialists from the University of Illinois, assume major responsibility for the development of the plans in each county.

Extension workers in all the states have been aware that the 4-H Club and the adult extension programs failed to interest any considerable number of the young people in this in-between group and that its numbers have been increased by the recent back-to-the-farm trend. Surveys conducted last year in scattered counties of Illinois indicate that there are from seventy to eighty thousand young people in the state for whom a program should be developed.

The programs of these pioneering Rural Youth groups are being expanded this year to include a state camp in the plans for which they are co-operating with young people from the Illinois Church Council and the state teachers' colleges. County conferences on program building, tours to places of interest in the state, and a one-day state conference at the University of Illinois are also being arranged.

The local program, however, is the most important activity. It must be developed so that it will help the young people to succeed in doing the things they set out to do. It must begin at the point the young people have reached in their ability to lead as well as at their level of interest and information. Success in gauging interest and ability is particularly important, since under the plan the rewards for the effort expended are success and recognition in their undertaking and the acquisition of valuable information. Unlike 4-H Club work, their new program includes no elaborate system of prizes as added motivation.

In the beginning of such a program, it may be helpful to study the interests of young people. As the work progresses, however, the things which the groups choose for themselves may be considered as most truly indicative of their interests. In Illinois they have included the following:

1. Recreational activity, including folk dancing, athletic events, picnics, parties, social dancing, tours
2. Drama production
3. Study of special phases of home economics or agricultural subject matter in which members of the group are interested
4. Study in the history of folk dancing
5. Study in the history of the state, followed by trips to places of particular interest
6. Study of social manners and customs
7. Study of personality development and discussion of desirable personality traits, possibly linked with interest in getting along with others
8. Group singing, quartettes, choruses
9. Special numbers that use the individual talents of members

Methods which farm and home advisers and extension specialists use to help these groups carry on their programs are: to assist in planning activities and studies which are within the ability of group members to direct and for which members can assume definite responsibility; to suggest effective ways of presenting material; to direct members to sources of information; and to help in training leaders through county, district, and state conferences.

For these conferences, young people help with initial plans and delegates lead the discussion and direct the recreational and other activities. In addition, adult speakers are scheduled for informational talks,

some of which include suggestions for new activity and study.

A program is usually planned for a relatively short period, particularly for a new group, because a program which does not succeed in balancing interest and abilities will soon discourage any group. Activities which meet recreational needs and provide opportunities for self-development seem to be of considerable interest.

Naturally, the program varies with the size and experience of the group. The outline for monthly meetings of a new group frequently is: mixer, group singing, business, special number by a member of the group, discussion, and recreation. Typical topics for discussion are: characteristics of desirable friends, how to be a success at home, what it costs to equip a farm home, qualities that lead to success in business. In a new group, monthly meetings and occasional meetings of a program-planning committee may form the entire program.

As the experience and membership of a group increases, it is likely to adopt a more elaborate program. At the monthly recreational meetings of a well-established group of 123 members, a regular feature for the last six months has been a one-act play put on by members. In addition, there are four special study groups that meet monthly to consider conservation, skilled driving, personality development, and a project entitled "Know Your Farm." The size of these study groups varies from 12 to 24 members, with a total enrollment of 68. The general program is supervised by a committee of young people who meet four times each year.

During the two years that the extension staff has been helping with Rural Youth activity in Illinois, emphasis has been placed on meeting the interests of the young people rather than on membership or organization. Of the 102 counties in the state, 70 are now carrying programs and the enrollment is 5,200. Membership in county groups varies from 20 to 230.

The possibilities of the Rural Youth program as a vehicle for adult education seem enormous. The extent to which eligible young people will take part in it depends on how well their abilities are gauged, their interests realized and served, leaders developed, and accessible meeting places discovered.

EDITORIAL

ELLEN POWELL DABNEY

To many home economists who have known and admired Mrs. Dabney it was a great disappointment that at the Seattle meeting last June she was not well enough to be present, though she had helped actively in the preparations. The disappointment became infinitely greater when her death on January 30 forbade all hope of renewing one's contacts with this beloved home economics leader.

She was a graduate of the University of Illinois and a teacher of home economics both before her marriage and after the death of her husband. After 1907, she was connected with home economics in the public schools of Seattle, first as a high school teacher and from 1911 until her death as supervisor of home economics. At the time of the War, she was one of the home economists who came to Washington to help with the home conservation program of the Food Administration; and twelve years later she was again in the Capital at Mr. Hoover's invitation, this time for the President's Conference on Child Health and Protection.

Her years of service were in a period of transition for the traditional American home, but this fact only intensified her sense of the significance of her chosen profession. As one of her associates says,

> To her the home was the center, the unit, the source of national life. Social and economic changes were affecting the home—it was less self-sustaining and in many cases less stable. She strove to encourage in "her girls" the love of home, to restore to them traditions of family life, to build up in them ideals of fine home life, to supply them with the needed knowledge and skills.

How her attempts to accomplish this were reflected in the progressive program of the Seattle schools appears in the article "Seattle Home Economics," which she wrote for the JOURNAL last June—just before the annual meeting there focused special home economics interest on that city.

While that article may suggest something of her educational vision, it reveals little or nothing of her loyalty, her courage, her ever-youthful enthusiasm, her openheartedness. Her generosity led her to take into her home many a friendless or needy girl and to give her material goods in ways that none but the recipients suspected. Not only these but all who knew her will feel a sense of deep loss at her passing and will find inspiration in their memories of her.

HOME ECONOMICS AT NEW ORLEANS

Home economics teachers are always glad to go to the winter meeting of the Department of Superintendence of the National Education Association because of the many general educational ideas and contacts that it provides; but after all, the parts of the week's doings which most directly touches their subject-matter field and its problems are the sessions of the Department of Supervisors and Teachers of Home Economics. This year they were held on Saturday, February 20, under the chairmanship of the president, Dr. Freda G. Winning of the School of Education, New York University.

The meetings began with an hour's business session, after which came two program sessions, both with the central theme of

"Progressive Home Economics." For the one in the forenoon, Dr. Winning turned the chair over to Clyde Mobley, state supervisor of home economics for Louisiana, and greetings were extended by Nicholas Bauer, superintendent of Orleans Parish Schools, New Orleans. The first of the four speakers, Lester K. Ade, state superintendent of public education in Harrisburg, Pennsylvania, was not present, but the paper he sent, "A Philosophy of Education in Modern Times," gave the background against which to consider progressive home economics. Next, Mrs. B. F. Langworthy, president of the National Congress of Parents and Teachers, in speaking to the subject of "Home and School Relationships," gave a practical illustration of one characteristic of progressive home economics, namely, the integration of the child's home and school experience, for which sympathetic understanding between teachers and parents is essential. "New Ventures in Home Economics" were described by Marie Driscoll, who, as acting adviser on home economics projects under the Division of Women's and Professional Projects of the W.P.A., has been closely associated with some of the newer applications of home economics developed under the emergency programs of the federal government. JOURNAL readers will remember the accounts of these which Mrs. Woodward, head of the Division, gave in the issues for September and November 1936. The last speaker of the morning, President James M. Smith of Louisiana State University, rounded out the program with a talk on "The Interrelationships Between Home Economics and Other Areas in the Education Program."

At the afternoon sessions, women directly engaged in home economics at various educational levels presented "Opportunities for Progressive Home Economics." Mable McBain, city supervisor of home economics in Houston, Texas, spoke for elementary schools; Florence Fallgatter, chief of the home economics education service in the United States Office of Education, for secondary schools; and since Director Edna N. White of the Merrill-Palmer School, Detroit, was prevented from coming to New Orleans, Miss Fallgatter consented to pinch-hit for colleges and universities.

Both morning and afternoon sessions were held in the fine new Rabouin Vocational School for Girls on Carondelet Street, and the students there were responsible for both the design and the printing of the unusually attractive, professional-looking programs. The picture on the cover, made from a sketch by Amy Feehan of an old kitchen in New Orleans' famous Vieux Carré, was as charming as it was appropriate.

The annual banquet was held Saturday evening at La Louisiane, one of the best-known and typical restaurants in a city famous for good eating. Arrangements were in charge of Mrs. Adele Stewart, supervisor of home economics in the Orleans public schools, and Lela A. Tomlinson, assistant state supervisor of home economics; and they had secured the co-operation of the city schools for a fine musical program, including numbers by the orchestra of the John McDonogh High School and French songs and spirituals by the glee club of the Sophie B. Wright High School. Another pleasant touch was given by favors made by home economics students in four local high schools.

It is expected that plans for the next meeting of the Department, to be held in connection with the N.E.A. convention in Detroit from June 27 to July 1, will be announced in the June JOURNAL.

Mrs. Adele Stewart, city supervisor of home economics, and the New Orleans home economics teachers and cafeteria managers were responsible for the arrangements for one of the most notable features of the whole N.E.A. convention, a breakfast for nearly 7,000 people served under

the Dueling Oaks in City Park. Oranges from a whole grove in Buras, Louisiana, were purchased to furnish the chilled juice served at the typical southern breakfast, which included steak grillard, calas (rice cakes), piping hot yellow grits, southern coffee, hot rolls, butter, and orange marmalade. Tables, arranged to spell N.E.A., were decorated with fruit and Spanish moss, and during the meal the visitors were entertained by old New Orleans street criers, old songs by The Mother Singers, and negro spirituals.

ASSOCIATION BUSINESS AT KANSAS CITY

At the end of March, when editorials for the May JOURNAL are written, there is little new to say about the annual meeting three months away. Earlier JOURNALS and the February *Bulletin* have outlined the plans; committees responsible for programs, local arrangements, diversions, and the rest, are busy with the uninteresting but all-important spadework; it is too early to announce the names of the distinguished speakers. The one thing that can be taken up at this stage seems to be the dull-sounding question of Association business.

But is it necessarily so dull? There are probably few professional organizations whose set-up allows for more participation by individual members or in which better provision is made for the interests of specialized groups. With five subject-matter divisions and ten professional departments to choose from and with the committee on committees doing their best to get good regional distribution and new blood into the working committees for whose appointment they are responsible, it ought not to be hard for any normally capable, normally social person to be an active participant in some of the Association's multifarious doings and from this to get the sense of team play that gives flavor to any business session.

It is true that most of the affairs of the Association as a whole are settled by the council, but any member of the Association may attend its meetings; she may even join in its discussions, though only accredited councilors may vote. Moreover, many important Association policies are really settled by the "sense of the meeting" and not merely by casual opinions that the councilors may have brought with them, and in this way every member present has a chance of helping to shape the decisions. If she is shrewd, she will soon recognize that this is not just a chance to play organization politics. It is a bona fide opportunity to help in developing the profession to which she belongs and which the Association exists to serve. Incidentally, she herself gains a personal sense of professional solidarity which stimulates her professional growth and is likely to improve her rating among her colleagues.

If she is active in her state association, she will be especially interested in the way things are handled by the central organization and by other states. Thanks to the work of the field secretary, the relations between the affiliated associations have been growing much closer during the last year or more, and every effort will be made at Kansas City to make them closer still. The special attention that is being given to exhibits showing the work of the different associations and the unusually good space available for these should help here. Unfortunately, the program is too full for as many conferences between state and national officers as they would like, but the best possible use will be made of the few occasions there are. At the luncheon for presidents, certain definitely recognized common problems will be taken up. Practical ways of strengthening state legislative work will be considered at the legislative luncheon. Editors of state newsletters and news gatherers for the JOURNAL will, as usual, have their joint luncheon; and, as usual, they will be asked in advance to say

what problems they most wish to have discussed.

The division and department meetings will report progress in subject matter and its application in the different lines of professional work. Speakers at the general sessions will give a broader view of home economics as a force in personal development and social life. The teas and receptions, the banquet, the talks in the corridors betweenwhiles will make us know one another better and remind us that we are human beings as well as home economists. The business meetings will develop the machinery by means of which this progress, this philosophy, this professional unity can be made more permanent and effective.

HOME ECONOMICS AND LIBRARIES

One of the committees whose reports will be received with special interest at Kansas City is that on home economics in education through libraries. It will be remembered that the work of this committee has been divided into two parts, one on the preparation of a book list and one on promotion. Each member of the committee was asked to choose where she would put her effort, and one even volunteered to work on both.

The first, under Miss Edna Amidon of the United States Office of Education, is continuing last year's work on the preparation of a list of books intended to guide and stimulate libraries in their purchases from the home economics and homemaking fields. The tentative list is being evaluated by committee members and also by corresponding committees in perhaps half the affiliated state associations, and the hope is that the revised list will be available very soon, certainly by the time of the Kansas City meeting.

The other part of the committee's work is under Miss Harriet Eddy of the University of California and is tackling the problem of how to promote the reading of home economics books. In developing its plans and putting them into action, it has the generous co-operation of the American Library Association, especially through Miss Julia Wright Merrill, chief of the public library division. In fact, she may be called the committee's library adviser and acts as sort of liaison officer between the committee and the state library organizations. The plan for the current year has been to try out the proposed procedure in nine "demonstration" states, one in each region. The states in which work was under way in April are: Maine, New Jersey, South Carolina, Louisiana, Ohio, Nebraska, Wisconsin, Oregon, and California. In each the state chairman on home economics in education through libraries, the state librarian (or secretary of the library commission), and the state home demonstration leader have been asked to undertake the following:

1. Listing home economics books that are in the libraries
2. Securing their use by home demonstration groups, women's clubs, P.-T.A.'s, 4-H clubs, home economics classes and clubs
3. Printing these lists in newspapers and printing book reviews
4. Securing purchase of additional books chosen from list furnished by book-list committee
5. Publicizing libraries' needs for better support
6. Assisting (in states having county or regional systems or desiring to promote such organization) in giving information in schools and to adult groups

Late that month, Miss Eddy prepared a progress report in which she assembled comments from the demonstration states. Among them were the following:

New Jersey: The Executive Board of the New Jersey Library Association passed a resolution saying they approved most highly of using New Jersey as a demonstration state for co-operation. The librarians are most enthusiastic about it, and a great many of the libraries have

already begun the co-operation.—SARAH ASKEW, secretary, State of New Jersey Public Library Commission, Trenton.

South Carolina: I am already working closely with the agencies you suggest for general library promotion. . . . In serving as home education chairman of the South Carolina P.-T.A., the insurmountable obstacle to effective functioning was that most of the members of the organization were without access to public libraries and did not feel able to purchase the books for the reading courses. . . . The enrollment of South Carolina for library demonstration will meet with the approval of our state home economics association president, I feel sure. The state W.P.A. Library Supervision and the members of the state Library Board, the state and county home agents, and the presidents of the women's organizations will all approve and further the work which you are planning.—MARY E. FRAYSER, Winthrop College, Rock Hill.

Louisiana: Sends a plan named "Read for Home Happiness." It tells definitely what the library commission, the home economics association, and the home demonstration department will do. They give their objectives as follows:

1. Provision of suggestive lists and promotion of the use by laymen of books on home improvement for federated clubs, parent-teacher associations, home demonstration councils, junior home economics units, 4-H clubs, men's service clubs, Future Farmers of America chapters, and other organizations
2. Awarding by the Louisiana Home Economics Association of "Readers' diplomas" to those persons reading a minimum number of books on homemaking
3. Supplying of programs based on homemaking books to organizations requesting them

California: In the 29 counties which have both a county librarian and a home demonstration agent, those two form an informal committee to carry on the work listed in the six points under "promotion." In many counties, the farm women who work with the home demonstration agent have chosen the county free library as a definite project. Each month they will see that home economics books are borrowed, and from time to time will visit the library so as to be prepared by the librarian to understand its needs and sponsor its improvement. Several county free libraries have already listed the books on home economics and these are being publicized through home demonstration groups, other organizations, and in newspapers. One county librarian phoned that she had $100 ready to purchase home economics books as soon as a list is available. . . . Miss Althea Warren, city librarian, Los Angeles, writes: "We shall be glad to receive the recommendations of the American Home Economics Association committee to check and be sure that our library owns the books you are recommending and to make special displays in our reference department and in our first-floor lobby cases."

STATE AID FOR LIBRARIES

The last two points in the program for promoting home economics reading through public libraries suggest the other side of the picture. The facts about funds for the support of public libraries are not all encouraging. In fact, the situation is serious enough for *The Saturday Review of Literature* to have devoted the whole of its editorial page for January 16 to "The Library Crisis" and for the American Library Association to be giving wide circulation to this telling statement.

The editorial pays tribute to the fine work done by the A.L.A. and other library organizations in assembling the facts of the case, shows how far we are from giving all our citizens an equal chance at libraries, and thus sums up the present state of things:

> At best, with only one-third of the population adequately supplied with libraries, the situation was never one to justify pride or even comfort. But the last eight years have made it alarmingly worse. Library appropriations were among the first to be curtailed. Services had to be cut down at the very time when the need for them enormously increased; librarians, viciously underpaid already, had to accept reductions in pay; the public, no longer able to buy books for itself, found that the libraries had to cut down their buying at a time when they ought to have been able to increase it. . . . All over the country both the stock and the condition of library books declined.
>
> In general the libraries are now better off than they were four or five years ago; but in general also they are forced to face the future with permanently

impaired budgets. If the acute crisis is over, what might almost be called a chronic crisis has succeeded it. . . . In general libraries are supported by a local tax on real estate, and to reduce the burden on real estate many states have not only reduced assessment values but have set a statutory limit on the tax rate. The states are reorganizing their tax systems on a state-wide basis and deriving more and more of their income from such sources as taxes on sales and on incomes. The taxing power of the local unit is being reduced and—whatever the benefit to the community and the taxpayer—the libraries are being left out.

The American Library Association holds that the library system must also be organized on a state-wide basis and must be supported by state funds. No one who investigates the subject can doubt that both contentions are sound. However flourishing metropolitan libraries may be and however readily they may be supported from metropolitan funds, it is only by state effort that the smaller libraries can be adequately supported and library services extended to the vast village and rural populations that are now without them. It is probable that in the poorest and least adequately served state even such action will not suffice and appeal must eventually be made to the national government. The key to the present crisis, however, is state organization and state aid.

Every citizen has a direct interest in this threat to democratic institutions and the proposed cure for it. In particular every subscriber to *The Saturday Review* has such an interest. The editor urges his readers to investigate the present crisis and to see for themselves how it affects their communities. Your library will be glad to give you any of the pamphlets the editor has been reading—do democracy the service of studying them. While you are at it, why not take the trouble to find out more about the services your library has been rendering to your community, and what its problems are? The crisis will appall you—which will be very good for all of us—but you will also be heartened to discover how loyally and how effectively the libraries have been serving the democratic idea under the handicap of poverty.

Home economists are just beginning to use the public libraries as a means of promoting interest in their subject. Have they not double reason for taking this admonition to heart and doing what they can, individually and collectively, to develop proper understanding of and support for public libraries in their own states?

PROGRESS OF THE FOOD, DRUG, AND COSMETIC BILL

Senator Copeland's bill, S. 5, whose pros and cons were pointed out on page 250 of the April JOURNAL, was passed by the Senate on March 9, after having been twice through the Committee on Commerce. When it was first reported out from the Committee, it was so unsatisfactory to consumer interests that the representatives of the 13 women's organizations supporting the bill questioned whether they should continue to approve it, and President Roosevelt's comments to the press were to similar effect. It was sent back to committee, and when it emerged again, it was in more satisfactory shape and was passed with little debate and only trifling amendments.

On March 9, the day the bill was passed, Senator Copeland inserted into the record a statement from the 13 women's organizations, among them the American Home Economics Association. In their opinion, the passage of the bill would improve the present situation by providing more informative labeling and extending regulation to cosmetics, therapeutic devices, and certain classes of drugs not included in the present act; but they also held that the seizure provisions would be weakened, and they did not approve those for advertising control, variation of drugs, and labeling of cosmetics.

RESEARCH

THE EFFECTS OF LAUNDRY METHODS ON COTTON FABRICS

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THE purpose of this study was to show the effects of several methods of washing and ironing on samples of commonly used cotton fabrics. Those selected for study were 5 plain-weave fabrics of the muslin variety, ranging in cost from 17 to 45 cents a yard and in weight from 1.623 to 2.842 ounces per square yard. Seven sets of samples were prepared from each of the 5 muslins for subjection to different laundry processes.

Two of the 4 laundry processes were those used on slightly soiled and badly soiled garments in a laundry affiliated with the Laundryowners National Association. In the latter, the number of runs was greater and the washing solution was stronger. In neither method was any bleach used. In some cases with each method a large ironer of the roller type was used, and in others the material was left unironed. Otherwise, no special treatment was given to these samples.

The other two processes followed the home procedure as outlined by Katie Adkins, a graduate student in the home economics department at the University of Missouri, in a thesis on file in the library of the University. The samples were first soaked in soft water for 5 minutes at room temperature. Then they were subjected to two washing periods of 10 minutes each for which suds was used made with 105 grams of a neutral soap to 15½ gallons of water and having a temperature of 100°C. There followed three 5-minute rinses in soft

TABLE 1

Price and physical characteristics of cotton fabrics, unlaundered

FABRIC NUMBER	AVERAGE WIDTH	COST PER LINEAR YARD	LENGTH OF FIBER		DIAMETER OF FIBER		YARN*				SIZING IN TERMS OF DRY WEIGHT	WEIGHT PER SQUARE YARD	THICKNESS	THREADS PER INCH		TENSILE STRENGTH	
							Number		Twists per inch								
			Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling				Warp	Filling	Warp	Filling
	inches	*cents*	*inches*	*inches*	*microns*	*microns*					*per cent*	*ounces*	*inches*			*pounds*	*pounds*
VI	35.9	17	0.869	0.863	14.6	13.6	31.5	35.2	11.2	14.7	0.38	2.842	0.0068	73	70	29.4	19.0
VII	36.1	24	1.088	1.125	14.5	12.9	47.0	49.8	18.6	12.1	0.61	2.638	0.0052	102	89	41.8	27.4
VIII	36.9	30	1.244	1.138	14.3	15.2	67.0	87.7	14.2	13.7	0.63	1.623	0.0043	98	76	26.5	12.7
IX	36.0	45	1.238	1.269	12.2	15.9	64.7	70.5	15.8	18.0	0.62	2.470	0.0050	118	118	41.6	36.0
X	39.4	45	1.194	1.225	13.4	14.5	72.6	81.7	17.6	13.2	0.12	1.757	0 0045	96	96	25 1	21.8

* All yarns were single ply and twisted to the left.

TABLE 2

Average percentage gain or loss in tensile strength of fabrics due to various laundry processes and treatments

PROCESS	TREATMENT	NUMBER OF LAUNDERINGS													
		1		5		15		30		45		75		100	
		Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling
Commercial, badly soiled	Washed	+4.25	+2.99	−0.30	+5.56	−6.08	+0.43	−15.50	−8.12	−19.45	−10.26	−26.75	−20.94	−29.79	−23.08
	Washed, ironed	+7.90	−5.98	−4.56	−2.14	−7.60	−9.40	−19.45	−13.25	−17.63	−18.38	−31.34	−35.47	−37.39	−44.87
	Ironed*	+3.65	−8.97	−4.26	−7.70	−1.52	−9.83	−3.95	−5.13	+1.82	−8.12	−4.59	−15.53	−7.60	−21.79
Commercial, slightly soiled	Washed	0.00	+4.27	−1.82	+5.56	−8.51	−0.85	−11.85	−12.39	−19.45	−13.73	−20.67	−21.79	−30.09	−26.92
	Washed, ironed	−0.91	+12.82	−0.91	−1.28	−7.60	−4.70	−18.23	−14.74	−20.06	−19.23	−23.71	−26.49	−34.04	−44.02
	Ironed*	−0.91	+8.55	+0.91	−6.84	+0.91	−3.85	−6.38	−2.35	−0.61	−5.50	−3.04	−4.70	−3.95	−17.10
Home	Washed	−1.22	−2.13	−7.29	−3.84	−10.94	−3.84	−12.77	−8.97	−13.98	−6.83	−20.97	−16.23	−26.74	−26.49
	Washed, hand ironed	−13.07	−10.68	−10.33	0.00	−16.41	−9.40	−16.41	−11.11	−20.67	−10.25	−22.49	−11.05	−28.27	−34.61
	Hand ironed*	−11.85	−8.55	−3.04	+3.84	−5.47	−5.56	−3.64	−2.14	−6.69	−3.42	−1.52	+5.18	−1.53	−8.12
	Washed, rotary ironed	−3.34	+0.43	−11.55	−10.26	−11.85	+6.83	−15.50	−11.96	−19.45	−11.54	−20.97	−14.53	−30.39	−28.63
	Rotary ironed*	−2.02	+2.56	−4.26	−6.42	−0.91	+10.67	−2.73	−2.99	−5.47	−4.71	0.00	+1.70	−3.65	−2.14

* Calculated as difference between results of washing and ironing and of washing only.

water, the temperatures for which were from 60° to 70°C., 30° to 40°C., and 25° to 30°C., respectively. After washing, the procedure was varied, one set of samples being ironed with an electric hand iron, one with a portable electric rotary iron, and one left unironed.

Seven sets of samples were prepared from each fabric, 4 of which were used for the commercial processes and 3 for the home process. All fabrics were laundered 100 times each and were left unsoiled between washings.

30, 45, 75, and 100 launderings by each of the 7 methods, each of the 5 fabrics was tested for tensile strength, weight, thickness, thread count, and shrinkage; the differences between the figures for the effect of washing and ironing and those for washing only were considered to represent the effects of ironing. The results appear in tables 2 to 6.

Tensile strength. The figures in table 2 show that the home method of washing reduced the strength of the fabric more than the commercial methods until after 30 launderings, when the reverse was true.

TABLE 3

Average percentage changes in weight of fabrics due to various laundry processes

PROCESS	TREATMENT	NUMBER OF LAUNDERINGS						
		1	5	15	30	45	75	100
Commercial, badly soiled	Washed	+10.72	+7.19	+11.78	+9.66	+8.34	+6.88	+4.56
	Washed, ironed	+7.50	+7.15	+6.84	+6.88	+3.53	+3.67	−0.66
	Ironed*	−3.22	−0.04	−4.94	−2.78	−4.81	+3.21	−5.22
Commercial, slightly soiled	Washed	+9.27	+9.53	+11.61	+10.24	+10.59	+8.65	+6.61
	Washed, ironed	+8.34	+5.52	+6.75	+4.94	+3.57	+2.56	−0.57
	Ironed*	−0.93	−4.01	−4.86	−5.30	−7.02	−6.09	−7.18
Home	Washed	+9.10	+11.85	+13.42	+11.96	+14.74	+16.50	+25.73
	Washed, hand ironed	+6.44	+8.74	+11.21	+11.17	+14.03	+18.44	+22.28
	Hand ironed*	−2.66	−3.09	−2.21	−0.79	−0.71	+1.94	−3.45
	Washed, rotary ironed	+7.94	+6.40	+10.90	+9.93	+12.84	+16.95	+21.44
	Rotary ironed*	−1.16	−5.43	−2.52	−2.03	−1.90	+0.45	−4.29

* Calculated as difference between results of washing and ironing and of washing only.

Testing. All tests were made in accordance with the methods of the American Society for Testing Materials (1) or of Phelps (2). The methods of sampling and testing for tensile strength were those followed in the study on page 333.

On the unlaundered fabrics, determinations were made of the following physical characteristics: fiber measurements, yarn number, twist and ply, water-soluble sizing, weight, thickness, thread count, and tensile strength. The findings, along with prices, are shown in table 1. After 1, 5, 15,

The losses in strength produced by the commercial ironer were much greater fillingwise than warpwise and became proportionally greater with increased launderings. They were usually greater than the fillingwise decreases following the use of the hand and rotary irons. The warpwise decreases in the fabrics ironed with a hand iron were marked after the first laundering but tended to grow less rather than more after repeated laundering.

Weight. Table 3 indicates that washing caused decided increases in weight regard-

less of the method used. In the home-washed fabrics, these increases continued throughout 100 launderings, whereas in the commercially washed fabrics they lessened after 45 launderings. Decreases in weight which might be attributed to ironing were greater in the commercially ironed than in the home-ironed fabrics and tended to become greater as the number of launderings increased.

Thickness. As will be seen in table 4, decreases in thickness were usual in the washed fabrics after 100 launderings, regardless of the method used. Ironing decreased rather than increased the thickening. The use of the hand iron decreased the thickening as much or even more than the commercial ironer until after 100 launderings. The effect of the rotary iron on fabrics was more like that of the commercial iron until after 100 launderings.

TABLE 4

Average percentage changes in thickness of fabrics due to various laundry processes

PROCESS	TREATMENT	NUMBER OF LAUNDERINGS						
		1	5	15	30	45	75	100
Commercial, badly soiled	Washed	+2.94	+2.94	−1.47	+2.94	+2.94	+1.47	−5.88
	Washed, ironed	0.00	−1.47	−7.35	−2.94	−1.47	0.00	−8.82
	Ironed*	−2.94	−4.41	−5.88	−5.88	−4.41	−1.47	−2.94
Commercial, slightly soiled	Washed	−1.49	+1.49	−4.41	+2.94	+2.94	−1.47	−1.47
	Washed, ironed	−4.41	0.00	−5.88	−4.41	+1.47	−2.94	−10.29
	Ironed*	−2.94	−1.47	−1.47	−7.35	−4.41	−1.47	−8.82
Home	Washed	−1.47	+1.47	−2.94	+2.94	+4.41	+2.94	−5.88
	Washed, hand ironed	−5.88	−4.41	−8.82	−5.88	−2.94	+1.47	−4.41
	Hand ironed*	−4.41	−5.88	−5.88	−8.82	−7.35	−1.47	+1.47
	Washed, rotary ironed	−4.41	−1.47	−7.35	−2.94	−1.47	0.00	−2.94
	Rotary ironed*	−2.94	−2.94	−4.41	−5.88	−5.88	−2.94	+2.94

* Calculated as difference between results of washing and ironing and of washing only.

Thread count. Increases in thread count (see table 5) were approximately the same with all methods of washing and were greater fillingwise than warpwise. This corresponds to the figures for shrinkage (see table 6), which were greater in length than in width. Ironing, regardless of method, generally decreased the thread count. This was especially notable fillingwise in the commercially ironed fabric. The decreases in the warp threads were slightly greater than in the filling of fabrics ironed with either the hand or the rotary iron.

Shrinkage changes. The shrinkage of the washed fabrics, as will be seen in table 6, was approximately the same, regardless of the method used. The warpwise and fillingwise shrinkages after one laundering amounted to 3 and 4 per cent, respectively. Further warpwise shrinkage was noted throughout the whole series of 100 launderings, the total amount approximating 6 or 7 per cent. Fillingwise shrinkage tended to lessen with repeated commercial washings up to 45, after which it increased. The two home methods of washing tended very slightly to lessen shrinkage in both directions. In the commercial processes, the shrinkage caused by washing was slightly increased fillingwise by ironing. In the home process, length-

TABLE 5

Average changes in thread count of fabrics due to various laundry processes

PROCESS	TREATMENT	NUMBER OF LAUNDERINGS													
		1		5		15		30		45		75		100	
		Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling
Commercial, badly soiled	Washed	+4.12	+7.77	+4.12	+5.55	+6.18	+6.66	+5.15	+8.88	+5.15	+7.77	+4.12	+7.77	+3.09	+10.00
	Washed, ironed	+3.09	+2.22	+3.09	+2.22	+5.15	+4.44	+3.09	+3.33	+5.15	+4.44	+5.15	+6.66	+3.09	+5.55
	Ironed*	−1.03	−5.55	−1.03	−3.33	−1.03	−2.22	−2.06	−5.55	0.00	−3.33	+1.03	−1.11	0.00	−5.55
Commercial, slightly soiled	Washed	+1.03	+4.44	+3.09	+4.44	+4.12	+7.77	+4.12	+8.88	+5.15	+7.77	+4.12	+7.77	+5.15	+8.88
	Washed, ironed	+3.09	+2.22	+4.12	+2.22	+4.12	+3.33	+4.12	+3.33	+5.15	+5.55	+5.15	+3.33	+5.15	+3.33
	Ironed*	+2.06	−2.22	+1.03	−2.22	0.00	−4.44	0.00	−5.55	0.00	−2.22	+1.03	−4.44	0.00	−5.55
Home	Washed	+6.18	+3.33	+4.12	+4.44	+4.12	+7.77	+5.15	+5.55	+5.15	+6.66	+4.12	+6.66	+6.18	+8.88
	Washed, hand ironed	+2.06	+3.33	+2.06	+4.44	+2.06	+6.66	+3.09	+5.55	+4.12	+5.55	+4.12	+7.77	+4.12	+8.88
	Hand ironed*	−4.12	0.00	−2.06	0.00	−2.06	−1.11	−2.06	0.00	−1.03	−1.11	0.00	+1.11	−2.06	0.00
	Washed, rotary ironed	+3.09	+4.44	+1.03	+4.44	+4.12	+6.66	+3.09	+5.55	+3.09	+6.66	+5.15	+7.77	+5.15	+8.88
	Rotary ironed*	−3.09	+1.11	−3.09	0.00	0.00	−1.11	−2.06	0.00	−2.06	0.00	+1.03	+1.11	−1.03	0.00

* Calculated as difference between results of washing and ironing and of washing only.

TABLE 6

Average percentage changes in length of fabrics due to various laundry processes

PROCESS	TREATMENT	NUMBER OF LAUNDERINGS													
		1		5		15		30		45		75		100	
		Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling
Commercial, badly soiled	Washed	−3.42	−4.19	−4.28	−4.09	−5.69	−3.77	−5.78	−2.74	−6.02	−2.98	−6.10	−4.00	−5.73	−3.26
	Washed, ironed	−1.05	−4.68	−0.49	−4.46	−0.98	−4.82	−0.66	−5.66	−0.85	−4.71	−6.89	−2.55	−2.57	−3.88
	Ironed*	+2.37	−0.49	+3.79	−0.37	+4.71	−1.05	+5.12	−2.92	+5.17	−1.73	−0.79	+1.45	+3.16	−0.62
Commercial, slightly soiled	Washed	−2.99	−4.17	−4.05	−4.56	−5.09	−3.70	−5.79	−3.12	−5.92	−2.91	−6.16	−4.26	−5.68	−3 95
	Washed, ironed	−0.53	−4.44	−0.40	−4.82	−0.88	−5.17	−0.49	−4.50	−1.05	−4.28	−6.47	−3.47	−2.21	−4.52
	Ironed*	+2.46	−0.27	+3.65	−0.26	+4.21	−1.47	+5.30	−1.38	+4.87	−1.37	−0.31	+0.79	+3.47	−0.57
Home	Washed	−3.05	−3.99	−4.28	−4.31	−4.93	−4.36	−5.77	−3.93	−5.98	−3.52	−5.36	−5.33	−7.26	−5.89
	Washed, hand ironed	−2.66	−2.42	−4.28	−4.29	−5.69	−3.77	−4.78	−2.74	−6.02	−2.98	−5.84	−4.43	−5.94	−5.32
	Hand ironed*	+0.39	+1.57	0.00	+0.02	−0.76	+0.59	+0.99	+1.19	−0.04	+0.54	−0.48	+0.90	+1.32	+0.57
	Washed, rotary ironed	−2.92	−2.25	−4.05	−4.56	−5.09	−3.70	−5.79	−3.12	−5.85	−2.77	−4.73	−4.83	−4.68	−6.11
	Rotary ironed*	+0.13	+1.74	+0.23	−0.25	−0.16	+0.66	−0.02	+0.81	+0.13	+0.75	+0.63	+0.50	+2.58	−0.22

* Calculated as difference between results of washing and ironing and of washing only.

wise shrinkage was slightly increased and widthwise shrinkage slightly decreased by the hand ironing, while no marked tendencies were noted in fabrics rotary ironed.

These results seem to indicate that in the long run the commercial washing methods lessen the strength of the fabric more than do the home methods. The fact that the commercial methods show smaller losses of strength after the first launderings may be explained by the frequent use of an alkali builder by commercial launderies (3). It has been shown that cotton threads may be strengthened after a few launderings in a soap-alkali solution (4). The finding of this study that shrinkage is approximately the same, regardless of how the fabrics are washed, corresponds to those of G. H. Johnson (5) in his research for the Laundryowners National Association. The fact that lengthwise shrinkage was not completed in the first washing is important to consumers of cotton fabrics, since most cotton fabrics are laundered many times.

That ironing by the commercial method produces greater pressure on the fabrics than the home procedure with either hand or rotary iron, is evidenced by the tendency for the thread count to lessen fillingwise and for shrinkage to lessen lengthwise but increase widthwise. The decided decreases in tensile strength of the filling threads observed with commercial ironing may be explained by the heavy pressure of the warp on the filling and perhaps also by high temperatures. Of the two home ironing methods, that using the rotary iron tends to affect the fabrics less than the hand iron.

Summary. 1. To determine the effects of commercial and home laundry methods on 5 cotton muslins, changes in tensile strength, weight, thickness, thread count, and shrinkage of the fabrics were measured at intervals. The results were analyzed to show both the effects due to washing and those due to ironing.

2. The commercial washing methods studied caused less decrease in the strength of fabrics during the first 15 launderings but more thereafter than did the home method. No marked differences were noted between the commercial method used for heavily soiled and for slightly soiled articles.

3. The effect of washing on shrinkage was similar with all methods.

4. That the ironer used in the commercial methods had more pronounced effects than either the hand or the rotary iron used in the home method, is evidenced by greater losses in the strength of fillingwise threads with repeated launderings, by the greater tendency of the fabric to decrease in weight and fillingwise thread count, and by decreased lengthwise but increased widthwise shrinkage.

5. Hand ironing produced greater decreases in strength warpwise than fillingwise, but the changes did not become proportionally greater with increased launderings. The tendency of this method to decrease the weight and thread count of the fabric and to increase lengthwise but lower widthwise shrinkage was not marked.

6. The effects of ironing with a rotary iron by the home method were slight, as evidenced by the lack of pronounced changes in the physical measurements after this treatment.

7. In the commercial process, ironing is responsible for as much or greater loss of strength fillingwise than washing; this becomes more pronounced with repeated launderings. In the home method, the washing procedure seems to be more responsible for the changes, except for the first few launderings.

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PRACTICAL SIGNIFICANCE OF RESULTS

This study of the effects of commercial and home laundry methods on cotton muslins does not lead to clear-cut comparisons between them. Commercial washing seems to be slightly easier than home methods on new materials but not on materials which have been frequently washed. Ironing by commercial methods is harder on the material than by home methods. In commercial laundering, the ironing weakens the material more than does the washing; in home laundering, it is the washing that does more harm, except in the first few times of launderings.

THE DURABILITY OF COTTON GARMENTS AS AFFECTED BY LAUNDERING AND WEAR

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MEASURES of durability are important in the selection of fabrics, especially to the buyers of staple textiles and those who are limited in their spending. Statements found in buying guides (1, 2, 3, 4), a textile book (5), and a technical journal (6) indicate that tensile strength is a good measure of durability. Abrasion is also considered important (7). Certain authors (8, 9, 10) have suggested that to give a picture of the serviceability of a fabric, this technical information should be supplemented by some of a more practical kind.

In general, it may be said that measurements of physical qualities are used as guides for buying. The United States government buys sheeting, ducks, percales, and many other textiles by specifications which include such physical qualities as tensile strength, thread count, and weight. One manufacturing company is attaching labels with specifications to their sheets and blankets. A few large department stores inform their customers of fabric qualities similar to those above mentioned. Consumer organizations such as the American Home Economics Association publish leaflets suggesting to consumers that they make their choice of fabrics according to physical tests.

The following study aims to show the effect of wear, as measured by physical changes, on a group of cotton garments which were worn and laundered until worn out. The data used in this study were collected by Katie Adkins, Sophie Pearlmutter, and Suzanne Davison, three graduate students in the department of home economics, University of Missouri. The theses in which they are reported are on file in the library of the University of Missouri.

Fabrics. The fabrics used in this study included 5 medium-weight muslins ranging in price from 10 to 29 cents. They were purchased in 1930. Samples of each were tested unused.

Garments. Each of the 5 muslins was used for making nightgowns of the one-piece, sleeveless type with gathers over the bust. Three sizes of gowns were included—large, medium, and small.

Wearers. The 24 women who served as wearers included 8 large, 8 medium, and 8 small in size.

Laundry methods. The four methods used in the tests were the same as those used by Ginter *et al.* in the preceding study (see page 319), methods 1 and 2 being commercial and methods 3 and 4, home.

The commercial methods were those used by a laundry affiliated with the National Laundryowners Association, method 1 for badly soiled and method 2 for slightly soiled articles. In both methods a large ironer of the roller type was used.

In both home methods the procedure for washing was that outlined in a thesis by Katie Adkins. For method 3 a hand iron was used and for method 4, a small rotary iron.

Procedure with gowns actually worn. Forty-eight gowns (16 of each size) were used from each lot of muslin. Twenty-four were distributed among the wearers according to size, worn for 3 nights, and then laundered. A second set of 24 was then used in the same way, and the two sets continued to be used alternately until they were worn out. The gowns were shifted about among the wearers so that each of the latter wore all those of her size. A gown was considered worn out when it showed several breaks one or two inches long, accompanied by holes or worn spots.

Procedure with unworn gowns. For comparison with the results obtained with gowns actually worn, 2 other sets of tests were conducted in which gowns were subjected to similar laundry treatment but no body wear. Each set consisted of 20 gowns, including 4 made from each kind of muslin. In the first set, those of each kind were laundered as many times as the worn ones of corresponding material had been laundered before they were discarded as worn out. The second set was laundered until the gowns showed as much wear as the corresponding worn ones showed when discarded.

Physical tests of fabrics and garments. All tests were made in accordance with the methods of the American Society for Testing Materials (11) or of Phelps (12). For all tests, random samples were taken from a strip of fabric about 18 inches long.

For testing tensile strength the strip method was followed, with 6 tests made warpwise and 6 fillingwise for each garment or material. The strips used were 1 inch wide. The tests were made under prevailing atmospheric conditions, then the strips were conditioned in a drying oven and the tensile strength was corrected.

Abrasion tests were made at the National Bureau of Standards with strips of material 1½ inches wide. The tensile strength for each material was determined before abrasion and after 100, 200, and 500 oscillations.

Tensile strength and thread count were determined for each unused material and for each garment after 5, 15, 30, 45, 75, 100, and 130 launderings. When a garment was considered worn out, tests for thickness, thread count, shrinkage, weight, and tensile strength were made. In the case of gowns worn out by body wear, weight and tensile strength tests were made for both upper and lower sections.

The results of these tests are given in the accompanying tables.

Discussion of results. As will be seen in table 1, the fabrics were numbered in descending order of price. That table shows that price bears no consistent relation to any one of the characteristics measured. Fabric I, the most expensive, is also the lightest and thinnest and has threads more closely twisted than the others; it

TABLE 1

Physical characteristics of unused fabrics

FABRIC NUMBER	COST PER LINEAR YARD	WEIGHT PER SQUARE YARD	THICKNESS	WATER-SOLUBLE SIZING	DIAMETER OF FIBER		TWISTS* PER INCH		YARN NUMBER		THREADS PER INCH		TENSILE STRENGTH	
					Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling
	cents	*ounces*	*inches*	*per cent*	*microns*	*microns*							*pounds*	*pounds*
I	29	2.551	0.0059	0.68	19.8	21.0	20.5	18.7	38.98	41.37	82.0	81.0	31.8	26.9
II	22	3.397	0.0087	0.55	25.5	25.9	13.7	14.6	27.40	39.43	82.0	79.0	43.3	33.7
III	19	3.320	0.0087	0.77	17.5	20.2	14.2	12.6	30.23	33.62	77.0	79.0	37.0	36.9
IV	15	3.227	0.0079	0.78	18.3	20.9	10.2	12.6	28.46	29.26	75.0	71.0	37.0	28.2
V	10	3.403	0.0084	16.20	20.9	21.2	12.4	13.1	26.18	31.92	66.0	61.0	38.8	19.0

* In all yarns the twist was to the left.

TABLE 2

*Tensile strength in unused materials and in materials subjected to various degrees of abrasion**

FABRIC NUMBER	NEW MATERIAL		AFTER ABRASION					
			100 oscillations		200 oscillations		500 oscillations	
	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling
	pounds	*pounds*	*pounds*	*pounds*	*pounds*	*pounds*	*pounds*	*pounds*
I	54	47	55	41	49	26	27	10
II	65	50	64	50	61	40	51	20
III	59	53	58	55	53	38	47	18
IV	53	41	54	39	49	29	42	15
V	56	30	54	29	52	30	52	22

* Tests made with strips 1½ inches wide.

TABLE 3

Tensile strengths of unused fabric and of laundered garments, worn and unworn

FABRIC NUMBER	UNUSED FABRIC		WORN AND LAUNDERED GARMENTS					LAUNDERED, UNWORN GARMENTS				
	Average tensile strength		Average number of launderings	Average tensile strength when "worn out"		Assumed tensile strength*		Average number of launderings	Average tensile strength when "worn out"		Assumed tensile strength*	
	Warp	Filling		Warp	Filling	Warp	Filling		Warp	Filling	Warp	Filling
				pounds	*pounds*	*pounds*	*pounds*		*pounds*	*pounds*	*pounds*	*pounds*
I	31.8	26.9	54.0	15.5	8.0	16.0	8.6	123.0	22.8	12.8	28.2	13.5
II	43.3	33.7	55.4	21.5	13.8	22.9	14.9	128.0	25.4	16.8	26.3	16.8
III	37.0	36.9	64.5	18.4	12.4	21.9	16.9	123.3	24.3	19.3	25.0	20.2
IV	37.0	28.2	40.5	15.8	6.8	10.3	1.6	78.5	19.9	9.1	11.5	−0.2
V	38.8	19.0	47.3	16.0	6.7	13.6	5.4	132.5	20.0	9.0	22.5	9.0

* See page 329.

ranks last in tensile strength of warp and next to last in that of filling. Fabric V, the cheapest, is chiefly notable for the large percentage of sizing, 16.20 per cent or from 23 to 29 times as much as any of the others. It ranks second in tensile

strength of warp but well below any other fabric as regards tensile strength of filling—in fact, the figure for the latter (19.0) is less than half that of the warp (38.8).

When the effect of abrasion on tensile strength as shown in table 2 is compared with that of body wear and laundering as given in table 3, it appears that the fabrics do not lose strength in the same order. Fabric V, which apparently withstood abrasion best, stands next to the last in assumed tensile strength (see next paragraph); it will be remembered that this fabric was very heavily sized. These results would indicate that the abrasion test is not a good measure of the actual wear that these fabrics received in service. The fact that Fabric V withstood abrasion so well might indicate that sizing helps fabrics to resist abrasion. However, more work needs to be done to confirm this supposition.

In table 3, the figures headed "assumed tensile strength" were calculated by simple proportion from the average number of launderings that the garments withstood. This average for the 5 different fabrics was 52.3. In the case of Fabric I, for example, the pounds decrease in 54 launderings was 16.3 (31.8 − 15.5); taking x as the pounds lost in 52.3 launderings, the computation is:

$$54:16.3::52.3:x$$
$$54x = 852.49$$
$$x = 15.8$$

It will be observed that this measure of the durability of the fabrics places them in the same order as do the direct measurements of their tensile strengths. This is true both for the garments subjected to body wear and laundering and for those subjected to laundering only.

Table 4 shows that in the case of garments considered worn out, those with highest tensile strength also have greatest weight, and vice versa. There does not, however, appear to be any relationship between the extent of change in tensile strength and that in weight and in thickness. Neither is there a consistent relationship between the changes in weight and in thickness; nor are they in similar proportions. There is a tendency, however, for both the weight and the thickness of the worn fabrics to vary according to the original thread count (see table 5), the finer materials, which were also the more expensive ones, showing larger gains or smaller losses in weight and in thickness than the coarser, cheaper ones. In fact, their rank in this respect is I, II, III, IV, V.

TABLE 4

Tensile strength, weight, and thickness of fabrics, unused and in "worn out" garments

FABRIC NUMBER	AVERAGE NUMBER OF LAUNDERINGS	TENSILE STRENGTH						WEIGHT PER SQUARE YARD			THICKNESS		
		Unused		"Worn out"		Gain or loss		Unused	"Worn out"	Gain or loss	Unused	"Worn out"	Gain or loss
		Warp	Filling	Warp	Filling	Warp	Filling						
		pounds	*pounds*	*pounds*	*pounds*	*per cent*	*per cent*	*ounces*	*ounces*	*per cent*	*inches*	*inches*	*per cent*
I	54.0	31.8	26.9	15.5	8.0	−51.26	−70.26	2.551	2.686	+5.29	0.0059	0.0069	+17.37
II	55.4	43.3	33.7	21.6	13.8	−50.12	−59.05	3.397	3.588	+5.68	0.0087	0.0086	−2.01
III	64.5	37.0	36.9	18.4	12.4	−50.40	−66.91	3.320	3.437	+3.52	0.0087	0.0085	−2.58
IV	40.4	37.0	28.2	15.8	6.8	−55.82	−73.25	3.227	2.868	−11.01	0.0079	0.0077	−3.17
V	47.3	38.8	19.0	16.0	6.7	−58.76	−64.72	3.403	2.578	−24.29	0.0084	0.0079	−5.65

Comparison of worn-out garments and garments similarly laundered but not worn.

Since it was impossible to determine directly how body wear alone affected the wear on the garments, this wear was calculated by obtaining the differences in physical measurements of the garments worn out by body wear and laundering and of similar unworn garments that were discarded after being laundered a corresponding number of times. The results are given in table 6. They show that for all

TABLE 5

Thread count and shrinkage of fabrics, unused and in "worn out" garments

FABRIC NUMBER	AVERAGE NUMBER OF LAUNDERINGS	THREADS PER INCH						SHRINKAGE					
		Unused		"Worn out"		Change		Unused		"Worn out"		Change	
		Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling
						per cent	*per cent*	*inches*	*inches*	*inches*	*inches*	*per cent*	*per cent*
I	54.0	82	81	86.1	87.3	+5.00	+7.78	48.55	24.55	45.14	24.97	−7.02	+1.71
II	55.4	82	79	83.8	84.5	+2.20	+6.96	49.00	24.37	45.95	24.48	−6.22	+0.45
III	64.5	77	79	78.6	85.0	+2.08	+7.60	47.05	23.46	44.22	23.06	−6.31	−1.70
IV	40.4	75	71	75.3	74.6	+0.40	+5.07	48.94	24.97	46.87	25.08	−4.23	+0.44
V	47.3	66	61	67.3	64.7	+1.97	+6.07	48.48	24.35	45.39	24.11	−6.37	−0.98

TABLE 6

Changes in tensile strength, weight, thickness, and linear measurements of garments of different fabrics "worn out" by body wear, by laundering, and by body wear and laundering

FABRIC AND TREATMENT	TENSILE STRENGTH		WEIGHT	THICKNESS	THREAD COUNT		LINEAR MEASUREMENTS	
	Warp	Filling			Warp	Filling	Warp	Filling
	per cent	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*
I Body wear	−30.49	−43.67	−5.16	−6.78	+0.24	+0.56	+1.42	−2.09
Laundering	−17.70	−21.76	+12.18	+24.42	+4.39	+6.91	−8.74	−1.60
Body wear and laundering	−48.19	−65.43	+7.02	+18.64	+4.63	+7.47	−7.32	−3.69
II Body wear	−26.73	−35.30	−4.53	−3.45	+0.86	+0.21	+1.66	+2.74
Laundering	−19.69	−16.99	+9.92	+3.45	+2.07	+6.58	−7.71	−4.25
Body wear and laundering	−46.42	−52.29	+5.39	0.00	+2.93	+6.79	−6.05	−1.51
III Body wear	−28.23	−40.62	−4.82	−6.89	+1.17	0.00	+2.20	−0.25
Laundering	−23.92	−21.95	+9.28	+4.59	+1.56	+7.85	−8.16	−1.55
Body wear and laundering	−52.15	−62.57	+4.46	−2.30	+2.73	+7.85	−5.96	−1.80
IV Body wear	−18.93	−31.54	−5.15	−3.79	+0.53	+0.57	+2.54	+6.29
Laundering	−35.54	−42.20	−3.53	+1.26	−0.13	+4.08	−6.99	−5.80
Body wear and laundering	−54.47	−73.74	−8.68	−2.53	+0.40	+4.65	−4.45	+0.49
V Body wear	−23.20	−40.51	+0.70	−2.38	−0.30	+2.46	−2.81	−3.02
Laundering	−30.92	−15.94	−19.92	−2.38	+1.82	+3.93	−3.07	+2.08
Body wear and laundering	−54.12	−56.45	−19.22	−4.76	+1.52	+6.39	−5.88	−0.94
Average								
Body wear	−25.52	−38.32	−3.80	−4.66	+0.50	+0.76	+1.00	+0.73
Laundering	−25.55	−23.77	+1.59	+6.47	+1.94	+5.87	−6.93	−2.22
Body wear and laundering	−51.07	−62.09	−2.21	+1.81	+2.44	+6.63	−5.93	−1.49

fabrics the decrease in tensile strength from body wear was greater than that from laundering, except in the case of filling threads from Fabric IV. In general, the decrease in strength of filling threads from body wear was from 2 to 3 times greater than that from laundering. As regards changes in weight and thickness, inch. The changes in linear measurements show, as would be expected, that laundering causes shrinkage and that body wear causes stretch.

The place where garments show most signs of wear is a matter of practical interest. Observation of nightdresses subjected to body wear in this study showed

TABLE 7

Comparison of tensile strength and weight of material from lower and upper sections of "worn out" garments made from different fabrics

FABRIC	SECTION	TENSILE STRENGTH		WEIGHT PER SQUARE YARD
		Warp	Filling	
		pounds	*pounds*	*ounces*
I	Lower section	19.9	11.0	2.749
	Upper section	13.4	5.0	2.622
	Difference	6.5	6.0	0.127
II	Lower section	24.8	17.4	3.652
	Upper section	18.3	10.2	3.530
	Difference	6.5	7.2	0.122
III	Lower section	20.1	15.5	3.530
	Upper section	16.6	9.4	3.346
	Difference	3.5	6.1	0.184
IV	Lower section	17.6	8.7	2.917
	Upper section	13.8	4.6	2.823
	Difference	3.8	4.1	0.094
V	Lower section	18.2	8.7	2.632
	Upper section	13.8	4.9	2.520
	Difference	4.4	3.8	0.112
Average				
	Lower section	20.1	12.2	3.096
	Upper section	15.2	6.8	2.968
	Difference	4.9	5.4	0.128

body wear seems generally to decrease both weight and thickness, whereas laundering increases both. With every fabric, the principal increase in thread count seems attributable to laundering, the effect of body wear on this characteristic being almost negligible except in the filling threads of the heavily sized Fabric V. The warp threads of that fabric were the only ones which decreased in number per

that signs of deterioration were most frequent under the arms, across the shoulders, and across the hips and that they took the form of warpwise slits, extreme thinness, and tiny holes. In the garments "worn out" by laundering alone, signs of wear took the form of slits along the side seams (especially at the double-seam thickness at the top of the hem), along the folds, and at the stitching of the hem. Labora-

tory tests were also made in connection with the effects of wear on different parts of the garment. Samples from the lower and upper sections of "worn out" garments made from each fabric were tested for tensile strength and weight, with results shown in table 7. They confirm the observation that the wear on the upper section of the nightdresses was greater than on the lower. They also show that warpwise the material was more weakened than fillingwise, the warp threads in the upper section having a tensile strength about three-fourths that in the lower, and the filling threads about one-half. The determinations of the weight of material from the two sections also indicate greater wear on the upper section.

Summary. 1. Five cotton muslins varying in price from 10 to 29 cents a yard were made into nightdresses and studied to show their durability under body wear and laundering.

2. No consistent relation was found between price of fabric and any one of the physical characteristics studied.

3. As regards durability, unused materials tested after artificial abrasion in the laboratory did not rank in the same order as the same materials subjected to body wear and laundering.

4. The order of the fabrics as regards tensile strength was the same when tested after body wear and laundering as when tested after laundering only.

5. As measured by tensile strength, the effect of body wear was greater than that of laundering.

6. Signs of deterioration due to actual body wear were greatest under the arms and across the shoulders of the garments. Those due to laundering were greatest along the folds and the edges of the heavy seams.

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PRACTICAL SIGNIFICANCE OF RESULTS

Besides other, more technical results, this study of 5 different cotton muslins such as are commonly used for nightdresses and similar garments shows that price per yard has little relation to durability; that in ordinary usage the garments "wear out" faster from actual body wear than from laundering; and that the effects of body wear are greatest under the arms and across the shoulders of a nightdress, while those of laundering are greatest along the folds and the seams.

TESTS ON UNUSED AND ON "WORN-OUT" PLAIN-WEAVE, COTTON FABRICS

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ALL intelligent consumer buyers are interested in buying textiles by specification. The trend of the times seems to be toward this type of information. In order that consumers may better evaluate such information when it becomes available, it seems important that they be acquainted with performance tests of commonly known fabrics. The study here reported was carried out with the idea of giving to the consumer a picture of the performance of a group of cotton fabrics used chiefly for house dresses and underwear.

The study was made in the textile and clothing department at the University of Missouri by a graduate student in textiles. The data were assembled and analyzed to show the comparative strength of 33 new and discarded plain-weave cotton fabrics supplied by homemakers and students interested in the project. The fabrics were tested both in the form of garments or household articles discarded because of wear and as pieces of the same fabrics unused. Since the garments had been used and discarded by various individuals, the length of service was not uniform but was in all cases sufficient to produce what the wearer considered a worn-out condition.

Of the 33 fabrics, 20 were used in dresses, mostly house dresses and children's play dresses; 9 in undergarments; one each for an apron, smock, towel, and quilt cover. The fabrics most frequently represented were percale, nainsook, batiste, and voile; gingham, chambray, challis, plissé, and muslin were among others included. To give a better picture of the fabrics, the yarn count and weight in ounces per square yard were determined for each fabric; and tensile-strength tests, using the strip method, were made on the new and discarded fabrics. All of these determinations were made according to the methods outlined in *A Laboratory Manual for Advanced Courses in Textiles* by Ethel M. Phelps (Burgess-Roseberry Company, Minneapolis, 1928). Percentage decreases in strength were also determined. The degree of wear on the discarded garment as judged by the laboratory worker was also noted as a possible help in interpreting some of the results. The results are shown in the accompanying table, in which the fabrics are grouped according to weight so that those of similar weight may be more easily compared.

A study of these figures shows that in the majority of the fabrics, both unused and discarded, the filling strength was much lower than the warp strength. Also, the decrease in strength as the result of wear was much greater fillingwise than warpwise. This raises the question why such fabrics are made with the warp threads so much stronger than the filling threads when both the appearance and the strength of the worn-out fabrics show the wear to be much greater fillingwise than warpwise.

Although a wide variation was found in the strengths of the fabrics when they were considered worn-out, this, along with other similar data, may give some basis for judging the degree of wear to be expected from fabrics of similar weights. It is believed that a knowledge of definite quality measures of this sort would aid in more intelligent selection of fabrics.

Results of tests made on 33 plain-weave, cotton dress fabrics, examined both before use and after being discarded as worn out

FABRIC NUMBER	TYPE OF FABRIC	USE	YARNS PER INCH		WEIGHT PER SQUARE YARD	TENSILE STRENGTH (STRIP TEST)						VISIBLE INDICATIONS OF WEAR
						New		Discarded		Decrease due to wear		
			Warp	Fill-ing		Warp	Fill-ing	Warp	Fill-ing	Warp	Fill-ing	
					ounces					*per cent*	*per cent*	
XII	Printed voile	Dress	72	75	1.37	19.1	16.9	12.8	5.7	32.8	66.2	Slits
XVIII	Printed voile	Dress	76	66	1.39	27.1	12.8	20.9	9.1	22.8	28.8	Seams pulled
XX	Printed voile	Dress	76	70	1.49	23.7	12.8	13.7	5.1	41.2	60.4	No worn places apparent
XVI	Voile	Dress	64	54	1.53	18.2	12.8	16.3	10.5	10.4	18.1	Slits at underarm
II	Nainsook	Infant's slip	100	80	1.57	24.5	9.8	12.4	4.1	49.6	58.4	Lengthwise slit
XI	Printed batiste	Child's pants	92	79	1.61	32.6	33.1	21.0	8.5	35.6	74.4	Slits; completely worn out
XXXIII	Gingham	Smock	98	89	2.55	34.1	29.2	28.2	23.1	17.3	21.0	Worn out at fold of cuffs; slit at underarm
IX	Printed nainsook	Dress	70	58	2.55	25.9	15.1	12.4	8.2	51.9	45.7	Very thin
VIII	Challis	Comfort	66	48	2.56	24.7	9.6	11.4	2.1	53.9	78.6	Well worn
XV	Printed nainsook	Dress	66	56	2.65	33.5	18.8	19.5	8.8	71.5	53.0	Numerous slits and holes
XIX	Printed nainsook	Dress	76	74	2.70	31.5	17.0	23.4	11.0	25.6	35.3	Completely worn out
I	Printed percale	Apron	69	60	2.72	39.2	22.7	11.1	3.1	71.6	86.4	Lengthwise slits; extremely thin
XXIX	Printed nainsook	House dress	68	62	2.78	33.4	16.6	24.2	12.2	27.5	26.3	Patched; slits
XXXII	Printed nainsook	Dress	100	89	2.85	44.0	30.1	28.5	22.4	35.2	25.6	Holes and slits
XIV	Printed nainsook	Dress	88	74	2.87	39.9	30.1	26.1	12.9	34.7	57.2	Slit at underarm
XVII	Printed nainsook	House dress	68	55	2.88	39.1	19.9	26.1	16.7	33.2	36.1	Slit along side seam
V	Plissé	Child's pajamas	76	52	2.99	25.3	17.5	14.7	9.9	41.9	43.6	Very thin and patched
XXIII	Printed percale	Dress	72	74	3.00	42.1	27.1	15.6	7.3	62.9	72.9	Slits
XXI	Plissé	Pajamas	79	54	3.04	20.2	16.3	8.2	5.1	59.4	68.5	Thin; slits
XXVII	Checked gingham	Child's dress	68	54	3.15	45.6	21.1	20.1	8.4	55.8	60.3	Worn at hem; thin
XXVI	Chambray	Child's rompers	77	65	3.20	48.1	27.0	25.3	18.0	47.4	33.2	Worn thin
XXX	Printed percale	Pajama trousers	86	76	3.28	37.9	22.1	27.5	18.8	27.6	14.8	Slit along seams
XXIV	Printed percale	Pajamas	84	78	3.29	49.4	29.2	30.0	16.6	39.3	43.1	Patches and small holes
XXII	Printed percale	Dress	88	76	3.40	42.0	26.0	15.2	10.4	63.7	60.0	Patches

Results of tests made on 33 plain-weave, cotton dress fabrics, examined both before use and after being discarded as worn out—Concluded

FABRIC NUMBER	TYPE OF FABRIC	USE	YARNS PER INCH		WEIGHT PER SQUARE YARD	TENSILE STRENGTH (STRIP TEST)						VISIBLE INDICATIONS OF WEAR
						New		Discarded		Decrease due to wear		
			Warp	Filling		Warp	Filling	Warp	Filling	Warp	Filling	
					ounces					*per cent*	*per cent*	
XXXI	Printed percale	Pajamas	88	78	3.40	52.8	32.5	28.0	17.7	47.0	45.5	Slit in leg
VI	Percale	Rompers	85	77	3.42	36.9	22.4	14.8	6.2	59.9	72.2	Holes and slit
X	Outing flannel	Pajamas	44	44	3.43	40.6	23.5	16.8	8.3	58.7	64.5	Thin
VII	Printed percale	Dress	84	76	3.45	42.8	29.3	19.0	11.4	55.7	61.0	Slits and patches
XXV	Printed percale	Child's dress	86	76	3.46	42.8	21.2	17.7	6.9	58.7	67.6	Worn around hem; thin; slits
III	Percale	Pajamas	86	76	3.51	42.4	29.3	22.6	10.4	46.8	64.4	Patched; thin across shoulders
XIII	Printed percale	Child's dress	86	78	3.61	44.3	29.4	30.1	15.1	32.0	48.8	Slit
IV	Toweling	Tea towel	62	38	5.13	47.2	40.0	8.5	5.3	82.0	86.7	Holes; worn selvage
XXVIII	Muslin	Men's shorts	52	52	5.29	43.5	47.8	29.7	34.4	31.8	28.0	Slit in back

PRACTICAL SIGNIFICANCE OF RESULTS

The lengthwise (warp) threads of the 33 materials tested in this study were stronger than the widthwise (filling) ones, and as a result the widthwise ones gave out before the others. In general, the study suggests that we could select fabrics more intelligently if we had definite information on such points as thread count and tensile strength.

BOOKS AND PERIODICALS

NEW BOOKS

Chemistry of Food and Nutrition. Fifth edition. By HENRY C. SHERMAN. New York: The Macmillan Company, 1937, 640 pp., $3.

Changes and additions made in revising this standard volume include the following: The enlarged introduction includes a review of food and nutritional research since 1900. The chapter on carbohydrates discusses the forms in which glucose exists and the polysaccharides, cellulose, and hemicelluloses. The MacLean classification of phospholipins and galactolipins is added, with further notes on the sterols other than cholesterol. The newly discovered threonine is included in the amino acid classification. The discussion of metabolism has been enlarged. The nutritional significance of acid-base balance is presented, and the chemical explanations of hydrogen-ion concentration, buffer action, and ion exchange in cells and plasma have been omitted. From the table of foods in which base-forming elements predominate, 12 containing a considerable amount of some organic acid which is not oxidized in the body have been omitted and new values are given for the 20 remaining. Further interpretation of the mineral requirements is presented. The nutritional discussion of anemias is confined to the two outstanding types of strictly nutritional origin. The "dietary standard" for iron has been reduced from 15 to 12 mg. per day, and the values for the iron content of fresh eggs, oatmeal, beans, and potatoes are increased. The chapter on vitamin A includes a discussion, with chemical formulas, of its precursors with values for 65 foods expressed in international and U.S.D.A. instead of approximate units, and also a discussion on the significance of vitamin A in nutrition and health. The chemical nature of the antineuritic vitamin is presented. The vitamin G chapter is now termed "vitamin G or the flavine factor"; the table of values now includes 50 foods instead of 28; and vitamin B_6 and H are briefly noted. The relationship of vitamin C (ascorbic acid, cevitamic acid) to nutrition and health is discussed; but because of the present uncertainty as to the nutritional effectiveness of dehydroascorbic acid, no table of numerical vitamin C values is given. The production of antirachitic substances by irradiation is discussed at length. In two new chapters on food economics, the chief emphasis is placed on the possible contribution of food chemistry to increased productivity of crops and farm animals and to the best utilization of food reserves for human nutrition. The food composition tables in the appendix have been revised in the light of recent analyses. White bread is the only kind now included, and graham and entire wheat flours are considered synonymous. No milk other than cow's milk is included. Additions are: cashew nuts, escarole, kale, parsley (iron only), and liver and soybean flour (calcium, phosphorus, and iron only). [The third edition was reviewed in the JOURNAL for November 1926, and its revision in 1932 was noted in October 1932.]

More House for Your Money. By ELIZABETH GORDON and DOROTHY DUCAS. New York: William Morrow and Company, 1937, 324 pp., $2.50.

Two experienced popular writers on practical housing topics collaborate to tell a prospective home buyer or builder how to go to work intelligently. They bring together and present in readable form much valuable but otherwise widely scattered information on such topics as "What to do before you begin," "How to get plans," "How much to spend and how to spend it," "Methods of construction," "Putting in the plumbing," "Manufacturing climate."

A Layman's Handbook of Medicine. Revised edition. By RICHARD C. CABOT. Boston: Houghton Mifflin Company, 1937, 541 pp., $2.50.

A well-known book by the author of the

even better-known *What Men Live By*. Its purpose and style are best shown by the opening paragraph of the original preface of 1916: "To boil medicine down to the essentials needed by the general public and yet to avoid making it tasteless is my attempt in this book. It is too long; but I could not make it shorter without also making it duller." The chapters on "Can We Select Our Physician Intelligently?" and "When the Doctor Is Most Useful" entitle it to a place in an almost vacant but extremely important section of the consumer's bookshelf.

National Health Series. Edited by the NATIONAL HEALTH COUNCIL. New York: Funk & Wagnalls Company, 1937, $0.35 a copy; any 3 volumes, $1.

Ten volumes have already appeared in this proposed series of twenty little books which the National Health Council is issuing to provide for lay readers "helpful and authoritative information about various aspects of personal and community health with which they should be familiar." Each volume is by a well-known specialist in its field. Titles and authors are: *Adolescence*, Maurice A. Bigelow; *How to Sleep and Rest Better*, Donald A. Laird; *Exercise and Health*, Jesse Feiring Williams; *The Expectant Mother and Her Baby*, R. L. DeNormandie; *Taking Care of Your Heart*, T. Stuart Hart; *The Healthy Child*, Henry L. K. Shaw; *The Common Cold*, Wilson G. Smillie; *The Common Health*, James A. Tobey; *What You Should Know about Eyes*, Park Lewis; *Venereal Diseases*, William F. Snow.

Factors Determining Human Behavior. Symposium of the Harvard Tercentenary Conference of Arts and Sciences, August 31 to September 12, 1936. Cambridge: Harvard University Press, 1937, 168 pp., $2.50.

Papers read at a symposium held during the Harvard Tercentenary Conference. Among the 8 internationally famous contributors are James Bertram Collip of McGill University on "Hormones in Relation to Human Behavior," Charles Gustav Jung of Zurich on "Psychological Factors Determining Human Behavior," and Bronislaw Malinowski of the University of London on "Culture as a Determinant of Behavior."

On Growing Old Gracefully. By CHARLES COURTENAY. New York: The Macmillan Company, 1936, 235 pp., $2.

How to escape the avoidable disadvantages of old age told with much common sense and charm of presentation by an English clergyman, himself 87 years old, to whom faith in God and in his fellow men is a helpful reality. The trend of the argument is suggested by such chapter heads as "Protective Defences," "Relationships," "The Temptations of Old Age."

School Begins at Two. From the manuscripts of HARRIET M. JOHNSON. Edited by *Barbara Biber* for the BUREAU OF EDUCATIONAL EXPERIMENTS. New York: New Republic, Inc., 1936, 224 pp., $1.10 postpaid.

This "book for parents and teachers" shows the outlook of a widely known worker with little children on the problem of preschool education. Both readable and sound, it is drawn partly from unfinished manuscripts and partly from her writings, which serve as a platform for educational experimentation in preschool education.

Early Childhood Education: Its Principles and Practices. By RUBY MINOR. New York: D. Appleton-Century Company, Inc., 1937, 763 pp., $3.

In this manual for workers with young children, the author attempts to steer a middle course between the fundamental importance of the individuality of the pupil and the "equally fundamental importance of the ways of doing things which constitute our civilization and our way of life" and directs her treatment toward the development "of desirable individuals within the organized life of the group." Emphasis is laid on "concrete examples of the value of experience as a basis of growth" and on the kindergarten and primary grade as a place where the educative process may be favorably shaped for later experiences.

Safety Through the Year. By FLORENCE NELSON and H. LOUISE COTTRELL. New York:

McGraw-Hill Book Company, [1937], 96 pp., $0.36.

An activity-, text-, and workbook for intermediate grades, prepared by teachers closely associated with the National Safety Council and including a section on home accidents and other topics related to household management.

Youth Serves the Community. By PAUL R. HANNA and RESEARCH STAFF OF THE WORKS PROGRESS ADMINISTRATION. New York: D. Appleton-Century Company, Inc., 1936, 303 pp., $2.

The first of a series of publications by which the Progressive Education Association hopes "through concrete example and practical suggestion, to help teachers and other educational workers to do more thorough and effective work in the schools." It is based on a survey, made with the help of W.P.A. workers, of socially useful projects carried on with children and youth under various educational and social welfare auspices in this and other countries. The underlying philosophy of the treatment is the idea of co-operative activities for community improvement, and the projects considered are classified as showing contributions of youth to such causes as public safety, community health, agricultural and industrial improvement, civic arts.

Education and Organized Interests in America. By BRUCE RAUP. New York: G. P. Putnam's Sons, 1936, 238 pp., $2.50.

"A comprehensive analysis of the attempts by partisan and special privilege groups to infect young America with different kinds of propaganda." An ingenious chart shows the general attitude of various groups of organizations toward 26 issues, the latter classified under the designations economic-political, war-nationalism, social-change, education, miscellaneous. All four of the women's organizations included appear divided in their attitude toward deviation from accepted opinions, with conservatism decreasing in the following order: General Federation of Women's Clubs, Business and Professional Women's Clubs, National League of Women Voters, American Association of University Women.

Moslem Women Enter a New World. By RUTH FRANCES WOODSMALL. New York: Round Table Press, Inc., 1936, 432 pp., $3.

"How the traditional customs of the East are being treated by a postwar generation" is here told by a woman who worked for many years among girls and women in Istanbul and who has traveled widely in many Moslem countries. The fact that the book appears as a social science publication from the American University of Beirut attests the accuracy of its facts and the value of its conclusions but does not suggest its charm of style or its human interest. College students interested in the life of women and girls of other countries will find it delightful reading, and parts of it (including the pictures) should appeal to high school girls as well.

The Future of Marriage in Western Civilisation. By EDWARD WESTERMARCK. New York: The Macmillan Company, 1936, 281 pp., $2.50.

In this volume, the author of *The History of Human Marriage* takes up various aspects of marriage today and by examining their causes seeks "to find an answer to the question whether they are likely to survive or to undergo a change." As regards the near future, he concludes that since marriage appears to be conducive to individual welfare and indispensable to the social order, it is likely to persist; and though minor changes are probable, he does not foresee radical legal modification of the monogamic order.

ABSTRACTS

EDUCATION

Contributed by the Home Economics Education Service, United States Office of Education

GENERAL

Teachers, principals, professors: a plan, ERNEST C. STEELE. *Educ. Method* **16,** No. 5 (Feb. 1937) pp. 227–231.

An interesting discussion of the need for teachers, principals, and professors "to work hand in hand for a steady and intelligent growth in every phase of public education throughout the land." A suggested plan for such a program of growth is proposed for consideration.—M. W.

Characteristics of a good teachers' meeting, CLARA L. PITTS. *Educ. Method* **16,** No. 5 (Feb. 1937) pp. 241–247.

The author draws a nice parallel between a good teachers' meeting and good classroom work. The question is raised whether as teachers and as supervisors we give sufficient planning to meetings and to classwork to insure the opportunity to secure the greatest amount of growth possible from the meeting or the classwork.—M. W.

Limits to a human being—if any, PHYLLIS BOTTOME. *Intern. J. Individual Psychol.* **2,** No. 4 (4th quarter, 1936) pp. 32–36.

Since persons form their life patterns from opinions they hold of themselves, all those who deal with children or young persons should be cautious as to restricting or discouraging their experiments unless these experiments are definitely a risk to themselves or to others. The teacher has the responsibility of making each child under his care have a courageous opinion of himself and helping him to understand that he can do, in any normal direction, what he trains himself to do. Some of the limits which individuals set for themselves are prestige, thinking, the opinion of others, false ideas of strength, age, sex, time, and one's own wishes. There is no danger so great as the danger of limiting the powers of a human soul.—S. M. B.

School guidance clinics in Vienna, REGINE SEIDLER. *Intern. J. Individual Psychol.* **2,** No. 4 (4th quarter, 1936) pp. 75–78.

A report of school guidance clinics organized to adjust school children who presented educational problems, as individuals and as a means of benefiting the whole school community. Teachers and school administrators were trained in the use of adjustment techniques and to follow up the children after their initial clinical experiences. The clinics were articulated with teachers' forums.—S. M. B.

Preserving academic freedom, EDWARD G. OLSEN. *J. Natl. Educ. Assocn.* **26,** No. 1 (Jan. 1937) pp. 3–4.

The degree of academic freedom permitted any teacher is usually dependent on a few specific factors. Those factors are enumerated and suggestions made as to ways in which teachers may earn the privilege of academic freedom. "Academic freedom is not a *right*; it is a *privilege*—and it is a privilege that has to be earned."—M. W.

The problem of unemployed women, MAGNOLIA L. LATIMER. *Opportunity* **14,** No. 11 (Nov. 1936) pp. 342–343, 348.

Views on the utilization of handicrafts and homecrafts in the stabilization of unemployed women.—S. M. B.

Theory and practice in rural education, GEORGE I. SANCHEZ. *Progressive Educ.* **13,** No. 8 (Dec. 1936) pp. 590–596.

A discussion of the pressing problem of rural education and the fundamental changes needed in the teacher-education institutions. Important among these is making the program practical rather than theoretical. If the teachers are to be equipped to meet the rural school problems in the field, their preparation will include "a more useful sort of education in the field of health and home economics. Under-

standing of and participation in rural trades and industries, cooperative economy, recreation, adult education, and community life will be accepted as prerequisites in the education of the teacher who is to render effective service in the country."—F. F.

Programs for leadership training, ELLEN C. LOMBARD. *School Life* **22,** No. 3 (Nov. 1936) p. 72.

During the summer of 1936, at least 30 institutions of higher learning in 15 states offered leaders of parent groups instruction in child study, parent education, parent-teacher techniques, or in all three of these fields. Many state teachers' colleges held conferences or institutes for a combination of techniques in parent education and parent-teacher work. In many states there is an increasing demand for recognition by teacher-training institutions of the needs of leaders of parents' groups. Plans so far reported for the summer of 1937 look particularly encouraging. —D. S. L.

State aid for adult education, TIMON COVERT. *School Life* **22,** No. 6 (Feb. 1937) p. 162.

Fifteen states—Alabama, California, Connecticut, Delaware, Maine, Massachusetts, Minnesota, Nebraska, Nevada, New Jersey, Oregon, Pennsylvania, Rhode Island, South Carolina, and Wyoming—provided funds for adult education for one or both years 1934–36. The amounts ranged from $500 to $1,700,000, with a median of $6,000. Practically all states use local funds for adult education, even if no state-aid program is in effect. The use of state funds varies from payment for a few hours of instruction a year to the support of a comprehensive daily program.—D. S. L.

ELEMENTARY AND SECONDARY

Youth in partnership, JOHN R. P. FRENCH. *Child Study* **14,** No. 4 (Jan. 1937) pp. 106, 108.

Parents and teachers need to recognize "the existence within the adolescent of a state of unstable equilibrium between the urge to freedom and adventure on the one hand and the recurrent childlike demand for protection and security on the other"; also the extent to which pain and perplexity result from his persistent urge "to be socially successful in his own world." Adults who are able to meet the adolescent on his own ground in a partnership have the capacity to "make sympathetic understanding the basis of every personal relationship"; they have "intrinsic respect for human personality" and a profound and enduring faith in the ultimate social value of the democratic principle. When the adolescent is given the satisfaction of determining his own behavior in the light of a fundamental principle, a practical problem is lifted into the region of idealism; when he is helped to understand that the liberties he wants can be had only at the price of upholding the doctrine of social responsibility, he is laying for "his future citizenship the only foundation that can be counted upon to endure." Such a partnership may be expected to work because "it runs with the grain of youth" and is in line with "the forces which from middle adolescence on most powerfully determine the pattern of youthful development."—E. P. A.

Evaluation in the field of social science, PEDRO T. ORATA. *Educ. Method* **16,** No. 3 (Dec. 1936) pp. 121–137.

A plan for encouraging students to look at the social order as it is, with a view to making individual decisions on how it should be reconstructed. The students reconstruct their habits, ideals, and attitudes in accordance with a framework which they themselves personally accept. The need is not for "a long list of highly specialized and compartmentalized situations but a series of naturally related situations that grow out of relatively big areas. If education is to be lifelike, testing must also be lifelike. We do not in life engage in taking tests on a long list of unrelated situations." A point of view of measurement is needed that is consistent with the philosophy, psychology, and methodology of progressive education.—S. M. B.

Our heritage, CAROLINE W. EDWARDS. *Hawaii Educ. Rev.* **25,** No. 5 (Jan. 1937), Part I, pp. 137–139; No. 6 (Feb.), Part II, pp. 168–169, 187–188.

In this series of articles is given a brief pic-

ture of the complex influences molding the home life of Hawaii of the present day, together with a plea to all who guide young people for such patient understanding of these influences as will bring about a fusion of the best from each race with the best of the characteristics American tradition offers.—E. P. A.

A program for secondary education, COMMITTEE ON PLANNING OF THE DEPARTMENT OF SECONDARY-SCHOOL PRINCIPALS, NATIONAL EDUCATION ASSOCIATION. *J. Natl. Educ. Assocn.* **26,** No. 3 (March 1937) pp. 71–82.

The chief proposals of the committee on orientation of the Department of Secondary-School Principals are presented and discussed briefly. Suggestions are made as to ways in which the material presented can be used to make "both the profession and the public conscious of the vital needs of the secondary schools and the problems which have a bearing on such needs."—M. W.

Friendliness and character, HOWARD M. LESOURD. *Natl. Parent-Teacher* **31,** No. 3 (Nov. 1936) pp. 11–12.

The greatest contribution of home and school to the capacity for friendship in young people is in terms of the qualities demanded by this relationship. If these institutions develop personalities and characters, each individual can be trusted to select his own intimates. Education in friendliness is not something separate and distinct but is concerned primarily with the spirit and idealism that is developing through every thought and action. The contagion of example is of tremendous importance in shaping the ideals of young people. Adults should take time to share their best with the young people with whom they come in contact. —D. S. L.

Blazing new Indian trails, JOSEPH C. MCCASKILL. *Occupations* **15,** No. 6 (March 1937) pp. 508–512.

An enlightening discussion of the change which has taken place in regard to the educational program for the American Indian youth. The major objectives for the new program which will enable the youth to understand the world about him and "enable him to live more creatively, the master of his environment, not its victim."—M. W.

Health after a fashion, PAULINE B. WILLIAMSON and FRANCES M. FOSTER. *Progressive Educ.* **14,** No. 1 (Jan. 1937) pp. 41–46.

This historical résumé of the development of customs and fashions shows that factors other than health have been the predominating influences. Several suggestions are offered as to how education can have more direct effect in changing modes of living. The scientific method of analyzing one's habits and attitudes may help establish through co-operative effort customs based on sound health principles.—F. F.

Nursery schools in 1936, MARY DABNEY DAVIS. *School Life* **22,** No. 4 (Dec. 1936) pp. 119–120.

An increase of 40 per cent since 1932 is shown by the 285 nursery schools reported in 1936. The permanency of nursery schools is indicated by the fact that two-thirds of the 1,117 schools reported in 1928 are included in the current list. Seventy-seven are used as laboratories in colleges and universities; 19 are sponsored by such philanthropic institutions as social settlements and day nurseries; 144 are tuition schools; and 11 are in publicly supported elementary and high schools, those in the high schools acting as laboratories for courses in family life and child care. Among the colleges and universities sponsoring nursery schools, there are 40 land-grant colleges and state and privately supported universities, 13 liberal arts colleges for women, 18 teacher's colleges, and 6 institutions at the junior college level.

The emergency nursery school program under the W.P.A. is starting its fourth year with 1,913 schools. These are frequently used as demonstrations for high school, teacher preparation, and parent education classes. Many boys and girls are acting as aides through cooperation with the National Youth Administration. Practically all states have appointed supervisors for the emergency nursery schools, and approximately 75,000 children between the ages of 2 and 5 have been enrolled each year.—D. S. L.

FOOD ECONOMICS AND DIETARY REQUIREMENTS

Contributed by the Staff of the Food Economics Section, Bureau of Home Economics, United States Department of Agriculture

An investigation of the diet of school children, A. ANDERSON. *Brit. Med. J.*, No. 3936 (June 13, 1936) pp. 1221–1222.

Meals for one day in September and one day in December were recorded by over 2,000 elementary school children in the industrial town of Chorley in an attempt to ascertain the usual constituents of the diet. The items of approximately 18,000 meals (including tea) have been tabulated, the percentage frequency with which these foods occur being shown in a table. Tea appeared in 67 per cent and milk for drinking in about 8 per cent of the meals. Among other percentage frequencies observed are the following: bread and butter or other fat, 57; cake, biscuit, buns, 27; eggs, 10; meat and bacon, about 30; fish, 4; potatoes, 30; vegetables, raw, 0.5; vegetables, cooked, 7; cheese, 2; cereal, 5; fruits and tomatoes, 16 in September, 8 in December. Although no attempt at quantitative analysis was made, these figures are considered to suggest a probable inadequacy of milk, eggs, fruits, and vegetables in the diets of these children. Routine medical examination of 1,280 children in these schools in 1935 revealed little clinical evidence of subnormal nutrition.

Nutrition policy in the Colonial Empire. Despatch from the Secretary of State for the Colonies, Colonial No. 121 (April 18, 1936), His Majesty's Stationery Office, London, 8 pp.

Following the recommendation of the Assembly of the League of Nations that governments study the problem of better nutrition for their countries, this despatch was sent to the officers administering the government of the colonies. In it are discussed the great potentialities of improved nutrition, affecting not only public health but agricultural and economic problems. Each dependency is asked to submit a survey of the present knowledge regarding the nutritive state of its people, a proposed program for future studies of and plans for improving their nutrition, and, in addition, a review of the effects which improvement in nutrition might have on the economy of the dependency. Co-operation between the administration and the educational, agricultural, veterinary, and medical departments is essential since any program would involve the use of the school, the maternity and infant welfare services, and other agencies already functioning. The production program of the agricultural and veterinary departments as well as the nature of the tariff can indirectly have an important influence on the nutrition of the people. It is suggested that, as a first step, all members of the above-mentioned departments be instructed concerning the importance of the subject and the aims of the government in regard to it.

Committee on Scottish Health Services Report, Department of Health for Scotland (Cmd. 5204, 1936), His Majesty's Stationery Office, Edinburgh, 404 pp.

This report is the result of a 3-year inquiry into the existing health services of Scotland in the light of modern conditions and knowledge. Evidence on the state of nutrition indicated a higher standard of health than existed 25 years ago. In the Highlands and Islands, tooth decay appeared to be on the increase. Typical diets indicated a shortage of the protective foods, particularly milk and green stuffs. While gross malnutrition was not found to any extent in Scotland, there was felt to be a great need for improvement in dietary habits. The committee reported a widespread interest in diet in relation to health. It was recommended that existing health agencies be utilized to promote a program of practical education on the selection and preparation of foods.

A diet survey of some families and institutions in Calcutta, H. E. C. WILSON, B. AHMAD, and D. N. MULLICK. *Indian J. Med. Research* **24**, No. 1 (July 1936) pp. 161–172.

Food consumption records were obtained from 10 middle-class Bengali Hindu families, a Bengali hostel for males, 2 orphanages (one Muslim and one Hindu), an Anglo-Indian

school, a Marwari gate-keeper, and (as representative of the poorer classes) an Oriya sweeper. Although the iron and vitamin content were not estimated, the results of the survey leave no doubt that these were all-round deficient diets, especially low in animal protein, animal fat, and calcium. The diet in the male hostel was deficient in every respect, furnishing on the average 2,500 calories, 51 gm. of protein (27 per cent of which was animal), 0.9 gm. of phosphorus, and 0.25 gm. of calcium per man daily; dairy products, fruit, and vegetables were entirely lacking. The diets in the 3 children's institutions furnished sufficient calories, from 62 to 80 per cent of which came from cereals. Of the 73, 65, and 76 gm. of total protein per capita, 9, 11, and 26 gm., respectively, were from animal sources. The average daily calcium intake was 0.29 gm. per child. Of the total money spent for food in these 3 institutions, 0.5, 9, and 17 per cent went for fruit and vegetables, while 0, 0.6, and 11.5 per cent, respectively, was used to purchase dairy products. In a population where meat is largely forbidden and fish not generally available, an increase in milk consumption plus the substitution of whole wheat for some of the rice would do much to correct the dietary deficiencies. The cost of such diets, however, would be beyond the means of the masses.

Iron retention in infancy, GENEVIEVE STEARNS and DOROTHY STINGER. *J. Nut.* **13**, No. 2 (Feb. 1937) pp. 127–141.

The iron retention by 14 infants under 1 year of age has been determined in 107 three-day periods, ranging from 4 to 14 for each infant. To the basal diet of human milk in one case and cow's milk, carbohydrate, and orange juice in the others, were added egg yolk, spinach, and a special cereal or an iron salt, and the effect on the retention of iron was observed. The baby receiving human milk alone with an average iron intake of only 0.45 mg. was never in negative balance. On the cow's milk diet alone, furnishing an average of 1.14 mg. of iron, there was an average loss of 0.05 mg. of iron daily. The ranges were wide, and no consistent relation between the intake and retention was found. When egg or spinach were added in amounts to give a total intake of 0.28 and 0.19 mg. per kilogram, respectively, iron retention was negligible. When the iron intake was increased to from 0.40 to 0.81 mg. per kilogram by the addition of an iron-rich cereal, 20 per cent of the intake was retained. Retention was also increased by the addition of ferric ammonium citrate. The level of intake of potassium, calcium, or phosphorus appeared to have no consistent effect on iron retention. Results indicate that a minimum intake of 0.5 mg. per kilogram is necessary for iron retention and that a more liberal intake (1.0 to 1.5 mg. per kilogram) is advisable.

The problem of nutrition. Vol. IV. Statistics of food production, consumption and prices. League of Nations Publications, No. A 12 (c), IIB (1936).

This material was prepared by the International Institute of Agriculture for presentation to the Mixed Committee on the Problem of Nutrition at its second session, June 4, 1936. Special attention has been given to the production, consumption, and prices of the protective foods that would have a distinct bearing on the state of nutrition in each country. The question of financial assistance given by governments to the producers of foodstuffs is discussed from the point of view of effect on the production and consumption of certain commodities such as the protective foods and also from the point of view of expense.

A review of recent work on dietary requirements in pregnancy and lactation, with an attempt to assess human requirements, R. C. GARRY and D. STIVEN. *Nut. Abstracts & Rev.* **5**, No. 4 (April 1936) pp. 855–887.

Dietary deficiencies in a population are apt to show most clearly in pregnancy and lactation, owing to the special demands of these functions. Any attempt to determine requirements must, of necessity, be based on results of research together with the practical experience of mankind.

In a study of 1,000 cases of pregnancy, the average gain in weight was 24 pounds. There is a tendency for obstetricians to advocate a restricted calorie intake. Indications are, however, that the calorie intake of the mother has little effect on the birth weight of the child,

except under extreme conditions. It may be of more importance with regard to subsequent lactation than to pregnancy. A milk production of from one pint to one quart would mean an increased requirement of from 350 to 700 calories per day. Energy requirements are increased approximately 18 per cent above the normal standard by pregnancy and 25 to 50 per cent by lactation. Carbohydrate probably is not very significant in pregnancy except as a source of energy. The requirement for fat during lactation may be higher than the customary intake. An intake of 100 gm. or more is recommended.

Metabolism studies indicate that the storage of nitrogen during pregnancy is far in excess of the calculated requirement. They offer evidence against the idea that high protein intakes are necessarily harmful. In one study, the lactating mother was shown to require, in addition to maintenance needs, an intake of 2 gm. of nitrogen for every gram of nitrogen in the milk produced. It is estimated that from 70 to 119 gm. daily are needed for pregnancy and from 84 to 100 gm. for lactation.

Studies of iron requirement based on hemoglobin determinations are difficult to interpret because the "normal standard" for nonpregnant women is not well established. The percentage of the iron intake which is retained depends to some extent on availability and possibly on the presence of other dietary factors. Assuming a retention of 20 per cent of the intake, an average of 18 mg. daily would need to be ingested to insure a storage of 1 gm., the amount probably required for fetal and maternal needs. Pregnancy requirements of minerals may be studied by (1) adding the requirement of the fetus to that of the normal adult, and (2) by determining the intake necessary to produce positive balances. The utilization of calcium and phosphorus may be affected by the presence of vitamin D, the relative acidity of the digestive tract and possibly by the calcium: phosphorus ratio in the food. The daily needs for calcium are estimated to be from 1 to 2 gm. and for phosphorus, up to 2 gm. during pregnancy and lactation.

The data having a bearing on human requirements for each of the vitamins are discussed, but no attempt is made to estimate quantitatively the needs for pregnancy and lactation other than to repeat the recommendation of the League of Nations Technical Commission. All the evidence cited emphasizes the need for high standards.

The determination of the calcium requirements of man, I. LEITCH. *Nut. Abstracts & Rev.* **6**, No. 3 (Jan. 1937) pp. 553–578.

In order to determine the calcium requirement at different ages, a digest has been made of the available data on the calcium metabolism of human beings, together with studies of growth rate and skeletal composition. From metabolism studies on women, the maintenance requirement of adults is estimated as 0.55 gm. per day or the intake above which, in the data examined, losses and gains of calcium were equal.

An additional allowance "for health" probably should be made. No correlation was found between body weight and the calcium requirement of adult women. Evidence is presented to show that calcium deficiency may be a contributing cause of senile osteoporosis. The calcium intake of infants fed on human milk containing on the average 0.32 gm. per liter is likely to be inadequate for skeletal needs. It is suggested that milk used in artificial feeding be so treated as to decrease the buffer value and increase the availability of the calcium in order to make possible maximum absorption and retention. Calculations of the calcium requirement for growth are based on the constant relationship between weight of the skeleton and body weight. Assuming a minimum basic requirement estimated by Stearns to be 10 mg. per kilogram and a retention of 50 per cent of the intake, the minimum gross requirements of children are estimated to be as follows: from 6 months to 2 years, 0.8 gm.; from 2 to 9 years, 0.9 gm.; 9 years, 1 gm., increasing to 2 gm. between 15 and 16 years; over 16 years, a gradual decrease to adult maintenance.

E. F. P.

THE HOUSE, ITS EQUIPMENT AND MANAGEMENT

Underwriters list 20 burners. *Air Conditioning Combined with Oil Heat* **10,** No. 1 (Jan. 1937) p. 52.

During December 1936, Underwriters' Laboratories, Chicago, approved 20 oil burners for home use. With one exception, these were all mechanical draft burners.

Legislation. *Am. Architect & Architecture* **150,** No. 2654 (Feb. 1937) p. 4.

Nevada has recently followed the example of 8 other states in limiting the tax on real estate. The total tax which in the future may be levied against real estate for all purposes is limited to 5 per cent of the true valuation. Proposals for similar measures are before the legislatures of 15 other states.

Trends. *Am. Architect & Architecture* **150,** No. 2654 (Feb. 1937) p. 22.

The interest in Swedish architecture, handicraft, and applied art, as well as in general economic conditions, has prompted the Swedish National Union of Students to plan two courses to be given in English for foreigners at Uppsala University between August 11 and 31, 1937. Fees for the handicraft and social science courses are $30 per course. Three weeks' board will cost approximately $25.

Some recent research developments in air conditioning, W. A. DANIELSON. Trans. of the 5th annual meeting, Southern Branch, American Public Health Association, Nov. 17 and 18, 1936, pp. 63–72.

The four main qualities of air are temperature, humidity, air motion, and cleanliness. From the public health standpoint, the greatest factor in air conditioning is thorough cleaning and sterilizing of the air, since evidence points to the floating particles in the air as the carriers of the virus which causes respiratory diseases. Electric filters have proved very effective for this purpose. To what extent humidity affects health is the subject of much controversy. According to the "comfort chart" of the American Society of Heating and Ventilating Engineers, the most comfortable temperatures indoors are from 66° to 75° in summer and 63° to 71° in winter, with humidities from 30 to 70 per cent. Ways of curing certain diseases by means of high temperatures have lately been studied by placing patients in a box in which a saturated atmosphere is maintained.

Prefabricated house for $4,625, fourth of Purdue's experimental houses. *Architectural Forum* **66,** No. 2 (Feb. 1937) p. 56.

All of the five houses built by the Purdue Housing Research Project are to cost less than $5,000 apiece exclusive of land, and they are to be adequate for 2 adults and 2 children of opposite sex. The one here described is a prefabricated unit costing $4,625 and is the cheapest so far built. However, it represents no considerable saving over usual methods of construction, since only from 25 to 30 per cent of expenses go for labor; nor can significant savings be expected until mass production of such houses becomes possible. The house provides good insulation against summer heat. The use of asbestos-cement material over plywood for paneling the external surfaces was not found entirely satisfactory. Two panels broke in handling; those under the windows warped so badly that rain water flowed into the space between the outer and inner walls; and cracks have appeared on the surface of several others.

Integrated bathroom. *Architectural Record* **81,** No. 1 (Jan. 1937) pp. 40–41.

A prefabricated bathroom has been developed in the Phelps-Dodge Research Laboratories, New York, which, because of its dimensions, is known as the "five by five." It includes two chambers: one for the bath and one for the lavatory and toilet, each stamped out in one piece of metal. Fixtures are an integral part of floor and walls, and the concealed plumbing may be reached by means of removable panels. The shape of the chambers and their width, 27 inches, permit their being carried through stairway bends and 28-inch doorways. Two men can handle an installation. The total weight of the complete unit is 250 pounds, whereas the average weight

for a standard tiled bathroom with fixtures is 1,000 pounds. The bathing chamber floor is elevated 9 inches above the level of the outer chamber to facilitate the cleaning of the bath. All corners are coved.

Develop load-bearing unit of glass-faced concrete. *Concrete* **45,** No. 1 (Jan. 1937) p. 32.

A new building unit known as glass tile has been developed. A sheet of glass is held firmly to a concrete block by means of a metal binder, making a single complete building unit calculated to carry a load of at least 1,000 pounds per square inch. A broken glass can be replaced by inserting a new piece in the metal binder. This building unit is suitable where easily washable surfaces are required, as in hospitals and restaurants.

A.S.H.V.E. research program for 1937 will evaluate present standards and reactions of public. *Domestic Eng.* **149,** No. 1 (Jan. 1937) p. 128.

The American Society of Heating and Ventilating Engineers announces that the research program for 1937 will center around the summer cooling of houses. The proper temperature to be maintained will be studied, as well as building construction and establishment of national standards for air-conditioning installations. Attention will be paid to methods of treating various diseases by means of proper air conditioning.

Kitchen planning and fatigue study in the home. *Elec. Age* **3,** No. 5 (Jan. 1937) pp. 169–170.

A film on motion study in the home has been made for the Electrical Association for Women [Great Britain]. The principles on which it is based are the following: Movements should establish a natural rhythm; all movements should involve as few parts of the body as possible; the worker should maintain a balanced posture, working with both hands; full advantage should be taken of the part of the body involved, such as using all fingers, instead of only the thumb and first and second fingers; all materials should be within areas of easiest reach; advantage should be taken of the human tendency to form habits.

Highlights, FLOYD W. PARSONS. *Gas Age Record* **79,** No. 3 (Feb. 4, 1937) pp. 25–26.

The federal government having bought 10,000 gas ranges on a guarantee that they will operate at an efficiency considerably above the 30 per cent specified by the Laboratory of the American Gas Association, it is recommended that this latter percentage be raised.

A low-cost house. *Home Information, Better Homes in America* **1,** No. 21–22 (Nov. 1936) 21 pp.

Description and cost analysis of a house built of reinforced concrete, C. PAUL ULMER. *Home Information, Better Homes in America* **1,** Nos. 23 and 24 (Dec. 1936) 50 pp.

Detailed descriptions of home building projects undertaken for experimental purposes by Purdue University, the first in co-operation with the State Planning Board.

What people want in housing. *Mthly. Labor Rev.* **44,** No. 1 (Jan. 1937) pp. 97–100.

The preferences of tenement dwellers were studied by the Women's City Club of New York and found to rank in the following order: all rooms to have outside windows; one toilet for every family; hot water; a bath for every family; central heat; adequate closets. The features stressed by moderate-income families were ascertained by the Niagara Hudson System in New York by means of a questionnaire distributed among power consumers. Twenty per cent of those who replied desired houses costing from $7,000 to $8,500, 19 per cent from $5,000 to $6,000. An amortization period of from 10 to 15 years was generally favored. Most families preferred buying to building, a residential section to a downtown or remote location, brick to any other type of construction. A full basement and basement laundry were considered most advantageous, and insufficient closet space in existing housing was emphasized by all.

Federal housing symbols are tiresome, CHARLES S. ASCHER. *Pub. Opinion Quart.* **1,** No. 1 (Jan. 1937) pp. 110–112.

Housing reform groups have not invented clever slogans. After three years, 55 federal projects involving $140,000,000 are under way,

but the public seems tired of hearing about housing. The appeal has been to "root out the slums" and "the slums must go." As a result, new structures have been put up in former slum districts which should have been left as parks, with the population moved out of the city. The crowning catastrophe was the capture of these slogans by interests opposed to public housing. Those who felt that public housing would compete with private enterprise backed a governmental scheme (the Federal Housing Administration) to insure institutional loans for modernization and home building. They backed this up with all the appeal of "private initiative" and "home ownership." As a result, proposals for public housing were defeated in many communities. With the present increase in the number of new speculative subdivisions and jerry-built homes, the public housing movement urgently needs some new hold on national attention.

Kaufmannsgehilfen und Wirtschaftlichkeit [Retailing employees and social economy], MAX MENZEL. *RKW-Nachrichten* **10**, No. 11/12 (Nov.–Dec. 1936) pp. 177–178.

Wholesaling, retailing, and transportation of goods must be made as efficient as manufacturing, and those employed in these fields of activity must learn to realize their responsibilities. One of their tasks should be the education of consumers with respect to the efficient use of the products they buy. This education has three aspects: social, cultural, and economic. Sales clerks can further this educational work by giving prominence to products which save or facilitate labor for the housewife; by selling only genuine and beautiful articles rather than goods of inferior quality; by keeping the idea of thrift before the customer; and by teaching her how to use economically and efficiently the things which she buys. Business employees should take part in the fight against waste by buying stock wisely, handling goods carefully, helping to sell standardized goods, increasing their own work load, and keeping public welfare constantly in mind.

Making bricks with straw found to be good science. *Science News Letter* **31**, No. 827 (Feb. 13, 1937) p. 104.

Recent experiments have led to the development of a material containing tannin extract—a constituent of straw—for the manufacture of bricks. The substance known as "plasticade" has a lignin and tannin base, and when added to bricks and tiles it reduces losses in drying and firing, increases the strength of the bricks, and decreases shrinkage and water absorption.

Lignin, now mostly just a steam polluting nuisance, shows promise of becoming useful chemical citizen. *Science News Letter* **31**, No. 828 (Feb. 20, 1937) pp. 122–124.

Lignin, the substance which cements together the structural elements of plants, makes up from 20 to 30 per cent of the average plant stem. Hitherto a million tons of lignin has been dumped into rivers annually as waste from pulp mills. Chemists at the U. S. Forest Products Laboratory in Madison, Wisconsin, have found ways of converting lignin into a plastic material which can be produced for 2 to 3 cents a pound. It can be used for such articles as ash trays, dishes, doorknobs, floor tiles, wall panels; has a high electric resistance which makes it good insulating material; and is a poor conductor of heat.

Oil burners for home heating, ARTHUR H. SENNER. U. S. Dept. of Agr. Circ. No. 406 (Nov. 1936) 26 pp.

Information about oil fuels, types of oil burners, factors in the selection of oil burners, adaptation of present heating plants for use with oil, selection of new equipment, year-round hook-up for domestic hot water, automatic devices, storage of oil, care of burners, safety, and the comparative values of oil and coal for heating.

M. C. H.

INSTITUTION ADMINISTRATION

What's new in restaurant equipment this year, KENNETH C. LOVGREN. *Am. Restaurant* **20,** No. 1 (Jan. 1937) pp. 43–65, 90–105.

A review of the new developments in equipment.

Improving your employees' efficiency, FLORENCE M. RICHARDSON. *Am. Restaurant* **20,** No. 2 (Feb. 1937) pp. 38–39, 68–69.

There is need for job analysis and a check list for the qualifications of employees, particularly in the food business, where personalities count for so much. A complete list of the worker's qualifications should be obtained before he is classified for a particular occupation. Introducing workers to their jobs and the use of handbooks are important in preventing turnover. The cost of labor turnover in restaurants is due to wrong interviewing and selective methods; irregular hours of work; and lack of salary promotion scales, training programs, and occupational pride among the workers. A training program should include personal grooming, food study, serving, suggestive selling, and conduct of employees with one another, the employer, and the public.

A cost-eye view of modern menu planning, H. E. STILES. *Am. Restaurant* **20,** No. 2 (Feb. 1937) pp. 41, 87–88.

Three main factors to be considered are demand items, profit items, and market buys. The low food-cost items must balance the demand items. This requires a knowledge of costs. Items of low food cost should be kept in as prominent a place on the menu as possible and must be well prepared and particularly attractive. A maximum cost should be set up and held to for each item on the table d'hôte meal.

School cafeteria costs, RICHARD L. SANDWICK. *Am. School Board J.* **94,** No. 2 (Feb. 1937) pp. 32–34.

The need is expressed for figures on operating costs in the school cafeteria which would serve as a guide. A description of the operation of Deerfield-Schield Cafeteria is given, and its figures are compared with 6 schools of the Chicago suburbs. The numbers served vary from 602 to 2,181. The percentage of total cost spent for wages ranges from 25.2 to 32.2, for food from 54.3 to 66.1, and for profit from 0.48 to 3.0. Student labor is paid from 35 to 60 cents an hour.

Selection, training, and supervision of employees, J. C. ALEXANDER. *Bldgs. & Bldg. Mgt.* **37,** No. 3 (Feb. 1937) pp. 28–29, 57–62.

Selection, training, and supervision are bound inseparably together. Failure in one will undo the good in successfully administering the other two. Care should be used in selecting the type of person who engages the workers; he has something to sell as well as to buy. The person who is to do the training must have an aptitude for teaching; his function is to observe and correct individual faults, see the need for changes, and fit these into new work schedules. In addition to a knowledge of the job, a supervisor should possess leadership, courage, sincerity, thoroughness, responsibility, patience, and the ability to develop men.

Frequent inspections keep employees efficient, J. C. LEEPER. *Bldgs. & Bldg. Mgt.* **37,** No. 3 (Feb. 1937) pp. 30–31, 62–64.

A clean and well-serviced building requires constant supervision by a competent and trained manager. Not the least of his duties are regular inspection trips throughout the building, on which consideration should be given to points listed. In addition, the appearance and efficiency of the employees should be observed and short conversations held with them in which their replies and attitudes should be noted.

Women take appearances seriously, DONALD A. LAIRD. *Factory Mgt. & Maintenance* **95,** No. 2 (Feb. 1937) p. 44.

A serious error is made in many institutions by requiring women workers to wear unattractive uniforms. Women judge by their eyes, whether in connection with merchandise they may buy or the merits of their jobs. They work more enthusiastically with better office

furniture, attractively decorated rest rooms, and attractive, tidy work places.

Employee security, LEWIS K. URQUHART. *Factory Mgt. & Maintenance* **95,** No. 2 (Feb. 1937) pp. s358–s368.

A "make haste slowly" approach is advocated. Its threefold program should include the things that the laws of the land say industry must do, the voluntary measures industry may take without unduly spending the stockholders' money or increasing production costs, and the voluntary measures which cost money but which should be taken only as fast as industry is able to pay for them. The first involves workmen's compensation, old-age pensions, and unemployment compensation; the second, mutual benefit, savings plans, salary savings, credit unions, and housing; the third, dismissal compensation, group insurance, supplementary old-age pensions, and profit sharing.

The responsibility of the dietitian in patient care (mental institutions), DOROTHY PRUITT. *Hosp. Mgt.* **43,** No. 1 (Jan. 1937) pp. 19–22, 55.

In the past there has been a lack of attention to patients' welfare in large institutions. The quantity of food, its adequacy, and the manner in which it is served can do much to improve the condition of the patient or retard his recovery. The cooks in the individual kitchens do not have the interest, high standards, and professional pride necessary to promote progress. A survey reveals that failure in the food department is usually due to lack of training of the personnel and the failure to centralize the responsibility for results. It is urged that an administrative dietitian be placed in complete and exclusive control of the entire food service and held responsible for its efficient and economical management. The duties of the dietitian as stated in the *Hospital Year Book* are cited.

Personnel requirements for successful hospital housekeeping, RUTH PARKER. *Hosp. Mgt.* **43,** No. 2 (Feb. 1937) pp. 55–56.

If the employees in the housekeeping department are self-respecting, neat and clean in their personal appearance, and honest with themselves, they will be honest about their work or anything that is a trust. They must know the value of human nature and material things, be prompt in reporting for duty, have a courteous manner to all and at all times and willingness. The employer should give praise where it is due. The proper approach to a problem confines itself to constructive measures which obviously mean progress. It is advisable to meet with the employees once a week to discuss the various everyday problems.

1937 food service equipment guide, J. O. DAHL. *Hotel Mgt.* **31,** No. 1 (Jan. 1937) p. 105.

List of equipment and prices as a guide for purchasing equipment for the following types of establishments: service restaurant, tearoom, sandwich shop, lunchroom, cafeteria, and fountain lunch.

Abnormal air conditions in industry; their effects on workers and methods of control, C. P. YAGLOU. *J. Ind. Hyg. & Toxicology* **19,** No. 1 (Jan. 1937) pp. 12, 43.

A detailed report of air conditions in industry. The emphasis is on textile mills, mines, and steel mills, but some of the results of the study are generally applicable. Extremes in heat and cold are shown to affect working capacity, accident liability, sickness, and mortality. Although heat or cold as such may be the cause of acute conditions, chronic effects appear to be largely due to sudden temperature changes and chilling the body while warm and perspiring.

Check on sandwiches. *Nation's Schools* **19,** No. 2 (Feb. 1937) pp. 57–58.

Nine high schools in Rochester, New York, ran a 20-day experiment on making sandwiches with 30 recipes. It was found that the larger the number of sandwiches made, the less time it took per sandwich because of the small amount of additional time needed for making a larger amount of spread. The best method found to conserve motions and time is given. A ham or sliced-cheese sandwich took 47.4 seconds and celery and olive 1 minute and 11.4 seconds to prepare.

What to do about floors, JENS FLIKEID. *Nation's Schools* **19,** No. 2 (Feb. 1937) pp. 60, 62+.

Detailed instructions for the treatment of different kinds of floors as carried out in the Minneapolis public schools. The types considered are maple, cement, marble, terrazza, rubber, linoleum, cork, and asphalt.

A way to reduce the fatigue allowance in time study, HAROLD C. TAYLOR. *Personnel* **13,** No. 3 (Feb. 1937) pp. 83–93.

Fatigue allowances can be decreased and production increased in repetitive work if the time and length of rest periods are specified in the standards. The best way to arrive at these is from the direct study of output curves, by means of which it is possible to determine an optimum length and distribution for rest periods.

Tiredness, JAMES H. TAYLOR. *Personnel* **13,** No. 3 (Feb. 1937) pp. 102–109.

Tiredness is the report which an individual makes of his own condition and is a personal matter. The work situation should be so arranged that the worker is primarily concerned with external events rather than with his own condition. This may be done by studying his movements on the job, socializing the working conditions, and introducing external factors. Periodic rest periods may be arranged during which the workers can relax and which will eliminate the signals of tiredness emanating from tired muscles.

Training of adult workers, C. G. SIMPSON, JR. *Personnel J.* **15,** No. 8 (Feb. 1937) pp. 288–294.

The aim of training workers is to find and apply the most effective and economical methods of employee development. In training adults it is especially important to have the aims clearly understood. "On the job" training is the most common, but not every good worker is a good teacher, capable of training new employees. Other methods are work inspection and individual instruction. Lecture meetings and discussion conferences are also very useful. Clinics where each person tells his job difficulties are helpful. Standard manuals and textbooks may also be used.

Watch your weight, NATALIE WALSH. *Prac. Home Econ.* **15,** No. 2 (Feb. 1937) pp. 47, 67.

The ever-mounting fractions of ounces for which a purchaser pays without getting anything in return are ruinous to any budget. Legally scales must conform to standards of weights and measures set up by the U. S. government. It is not enough to know one's grocer and butcher; the buyer must also know that the scales are correct.

Records for the smaller school cafeterias, MAE D. PAIGE. *Prac. Home Econ.* **15,** No. 2 (Feb. 1937) pp. 56–58.

Only such records should be kept as are actually needed. The necessary information for the dietitian, the Board of Education, and the auditor will be furnished by records of financial transactions, personnel, and the production and sale of food.

Hot luncheons for hungry children. *Trained Nurse & Hosp. Rev.* **98,** No. 1 (Jan. 1937) pp. 53–55.

A résumé of the national W.P.A. project under which 5,000 or more experienced women are employed to prepare and serve luncheons to more than a million and a half children daily. In all of them, a check-up shows a gain in weight and general physical improvement. Menus and organization vary in different parts of the country. In one county of North Carolina, children bring supplies such as fruits, vegetables, and eggs and are paid with tickets which are redeemable for lunches.

Health service and its relation to the accident prevention program, JOANNA M. JOHNSON. *Trained Nurse & Hosp. Rev.* **98,** No. 1 (Jan. 1937) pp. 59–60.

Costs of insurance and medical compensation are shown to decrease when a well-conducted health and accident-prevention program is carried out.

M. DE G. B.
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MISCELLANY

"Home Economics Education Courses." This is the title of U. S. Department of the Interior, Office of Education, Vocational Education Bulletin, No. 187. It is "a study of practices in teacher-training institutions reimbursed from federal funds for vocational education" and is developed from a thesis by Florence Blazier. The factual information, the evaluations and criticisms of the courses and the topics included in them, and the conclusions and recommendations are all of importance, especially in connection with so-called vocational homemaking education.

Libraries and Educators. Of interest in connection with the library work of the American Home Economics Association (see page 316) is the brochure "How Shall We Educate Teachers and Librarians for Library Service in the School?" published and sold for $1 by the Columbia University Press, New York City. It gives the findings and recommendations of a joint committee from the American Association of Teachers Colleges and the American Library Association.

Another welcome publication is the revision of Kitson and Lingenfelter's "Vocational Guidance Through the Library," which first appeared in 1931. It is available from the American Library Association, Chicago, and the price is 40 cents.

From Farmer to Consumer. "The Farmer's Share of the Consumer's Food Dollar" is the title of U. S. Department of Agriculture Leaflet No. 123. It is a simple presentation of the differences in the amounts received by the producer and paid in the retail market for different foods and in different years.

For Consumers of Dry Goods. Two articles in the January issue of the *Bulletin of the National Retail Dry Goods Association* are of interest to consumers. In the first, entitled "Who Will Accept Responsibility for Quality in the Future?" I. J. Fairchild of the National Bureau of Standards advises the merchant to do this and thus make sure of the confidence of his patrons. In the second, "The Credit Manager in a New Role—Advisor on Family Budgets," J. Anton Hagios develops the idea that this store official could, by giving sound advice, increase the purchasing power of the clients with whom he deals.

Carpets and Rugs. Practical, clearly stated advice on how to care for woolen floor coverings is found in the leaflet "The Maintenance and Care of Wool Carpets and Rugs." It is issued by the Institute of Carpet Manufacturers of America, Chrysler Building, New York City, and a copy will be sent in response to a request accompanied by a three-cent stamp.

Venetian Blinds. With Venetian blinds so much in demand, students of household furnishings may be interested in an article on "Coloring Slats for Venetian Blinds" which George Rice contributed to *Textile Colorist* for October 1936. Although the processes described are primarily for commercial use, the discussion is of interest in connection with home conditions.

Selling Groceries—a Woman's Business. The fact that "groceries are, after all, a woman's business" is the starting point of the argument Paul Bernstein develops in *The Co-operative Merchandiser* for February. JOURNAL readers will perhaps say that along with her sympathetic understanding of the woman buyer's point of view a bit of home economics training might not come amiss to the saleswoman.

Publicity Methods. Equally applicable to other causes are many of the suggestions given by Dorothy Rowden of the American Association for Adult Education in a recent pamphlet "Publicity for Adult Education." It is published by the Service Bureau for Adult Education, New York University, Washington Square, New York City, where it may be purchased for 35 cents a copy.

Posture. Bess M. Rowe brought together the facts for the simple, sensible discussion of

"Good Posture for Health and Beauty" which *The Farmer's Wife Magazine*, St. Paul, Minnesota, now offers in an attractive illustrated leaflet. It sells for 10 cents.

The Public Opinion Quarterly. Judging by the first issue (January 1937), anyone concerned with what people think and why, will enjoy this new magazine issued by the Princeton School of Public Affairs through the Princeton University Press. Articles in that number include "Editorial Policies of Broadcasting Companies" by Merrill Denison and "Informational Techniques of the Department of Agriculture" by T. Swann Harding. The subscription price is $4 a year.

Educational Radio Scripts. In connection with its Educational Radio Project, the U. S. Office of Education has established a script exchange "designed to serve as a bureau of information regarding the sources of educational radio scripts and as a depository and point of distribution for selected script series." The mimeographed catalog issued in connection with it lists available scripts according to various general subjects, suggests how they may be used by schools and other groups, and tells on what terms they may be borrowed. Other publications are a "Radio Manual" and a "Radio Glossary."

Motion Pictures. Twenty-odd references to books or pamphlets on the educational uses of motion pictures are included in a mimeographed list prepared by *The News Letter* of the Bureau of Educational Research, Ohio State University, Columbus.

An interesting "Glossary of Movie Terms" is one of the features of *Scholastic* for November 21, 1936, an issue devoted to motion pictures.

U. S. Women's Bureau. Recent bulletins from the Women's Bureau of the U. S. Department of Labor which home economists may wish to see include: No. 123, "Employment in Hotels and Restaurants"; No. 141, "Piecework in the Silk-Dress Industry"; No. 143, "Factors Affecting Wages in Power Laundries"; No. 144, "State Labor Laws for Women" (revision of No. 98, 1931); and No. 148, "The Employed Woman Homemaker in the United States: Her Responsibility for Family Support."

Social Adjustment. Home economists in social work will be glad to hear that a paper read by Margaret E. Rich at the 1936 International Conference on Social Work is now available in pamphlet form from the Family Welfare Association of America, 130 East 22nd Street, New York City. It is entitled "Current Trends in Social Adjustment Through Individualized Treatment" and sells for 20 cents.

For Kindergarten and Primary Schools. The committee on equipment and supplies of the Association for Childhood Education has prepared a list of recommended materials for primary grades, kindergartens, and nursery schools. The items and addresses from which they may be obtained are conveniently arranged in a bulletin sold by the Association, 1201 Sixteenth Street, N.W., Washington, D. C., for 50 cents a copy.

Puppets. How to make and use puppets at home is told by Kate C. Hall in *Recreation* for December.

News Notes of Science. The following bits of information are culled at random from recent issues of *Science News Letter*. Growing plants in tanks of warm, fertilized water instead of in soil was first dubbed "dirtless farming," but its originator, W. F. Gericke of the University of California, now suggests the term hydroponics, derived from Greek words meaning water and labor. It is estimated that the amount of food that will be condemned this year because of damage by floods will be twice, perhaps three times, as great as last year's 50,000 tons. A scientist in the U. S. Bureau of Mines has developed a process by which sound waves can be utilized to prevent smoke from belching out of chimneys and expects it will be sufficiently inexpensive for use on small factories—and, let us hope, on the apartment houses whose smoke darkens the life of so many city dwellers.

NEWS NOTES

GENERAL

Omicron Nu Conclave. Celebration of the 25th anniversary will be a feature of the Conclave to be held in Kansas City, June 18 to 20, just preceding the meeting of the A.H.E.A.

New England Health Education Association. The annual meeting will begin at 1:30 p.m. Friday, June 4, at the Naval Pratt Building, Massachusetts Institute of Technology, Cambridge, and will continue through Saturday, June 5.

Vassar Institute of Euthenics. The 12th session of the vacation school for college graduates and seniors will be held July 1 to August 12. Full information may be obtained from the director, Dr. Ruth Wheeler, Summer Institute of Euthenics, Vassar College, Poughkeepsie, New York.

International Housing and Town Planning Congress. This will be held in Paris from July 5 to 18 under the joint auspices of the International Housing Association, whose headquarters are at Frankfurt-am-Main, and the International Federation for Housing and Town Planning, located in London. The former will be responsible for reports on the rent and financing for the small dwelling and the latter for reports of progress in national and regional planning; while both will report on vertical and/or horizontal development. The membership fee for the Congress will be 150 francs. Further information may be obtained from the Paris office of the International Housing Association, 32 Quai des Célestins, Paris 4.

Public Health Meetings. The American Public Health Association, whose headquarters are at 50 West 50th Street, New York City, will hold its 66th annual meeting in New York City from October 5 to 8, 1937. It is estimated that an overnight's ride will enable more than half of the Association's 5,000 members to attend the convention.

Related societies which will meet with the Association are the American Association of School Physicians, the International Society of Medical Health Officers, Conference of State Sanitary Engineers, Conference of State Laboratory Directors, the National Organization for Public Health Nursing, the Association of Women in Public Health, and Delta Omega.

ALABAMA

Alabama College. Dr. Ivol Spafford, former state supervisor and now at General College, University of Minnesota, was a recent guest of the staff.

Students at the home management house have been painting and redecorating it under Mrs. Margaret Coyle's direction.

On March 6, Mrs. Crawford started a new series of parent education courses in east-central Alabama.

An exhibit was held this winter of representative pieces of Wedgwood, Adderley's, Spode, Sèvres, and Haviland china; and Audra Vann, a junior, gave a talk on the various types.

Alabama Polytechnic Institute. The School of Home Economics has several new laboratories, including a new foods laboratory in Brown Hall.

Huntingdon College. Madge Johnson recently gave a series of talks to local Girl Scouts on personal appearance.

On March 12, the home economics club gave its annual St. Patrick's Day tea, the proceeds of which will be used to defray the club expenses.

University of Alabama. The department of clothing and textiles will participate in the anthropometric project of the U. S. Bureau of Home Economics.

The Caroline Hunt Club co-operated with Phi Upsilon Omicron in arranging the annual banquet of the School of Home Economics, which marked the tenth anniversary of Agnes

Ellen Harris as dean of home economics. Florence Fallgatter of the U. S. Office of Education was guest of honor, and the new president of the University, Dr. Richard Foster, extended greetings.

Extension Service. Dr. W. P. Jackson of the National Recreation Association conducted a recreational school in Auburn in March for 4-H Club leaders and home demonstration agents.

Talladega County has organized a 4-H County Council for girls, with Louise Lowery of Childersburg as president.

ALASKA

Vocational Education. Esther M. Morris, homemaking supervisor, reports that this year, in spite of decreased funds for vocational education, 13 towns, 8 more than last year, are offering vocational extension classes to homemakers. This year there are 8 high school vocational departments, as compared with 2 last year.

COLORADO

Colorado Home Economics Association. Speakers at the annual meeting in Colorado Springs on April 24 included Dr. Essie W. Cohn of the University of Denver, whose subject was "Recent Advances in Nutrition"; and Dr. Max Meyer, who discussed "The Latest Developments in the Textile Industry."

ARKANSAS

University of Arkansas. Margaret Smith, research assistant in home economics, read a paper at the Southern Agriculture Workers meeting at Nashville.

Extension Service. The second annual short course for home demonstration agents in Arkansas was held at the University of Arkansas from March 8 to 12. Speakers included Gussie Haynie, chairman of the State Welfare Board; Alma Keys and Frances Bailey of the State Department of Education; Louise Sater of the T.V.A.; Mary F. Taylor of the Rural Electrification Administration, Washington, D. C.; Eugene Merritt, U. S. Department of Agriculture; and C. B. Loomis, regional administrator, A.A.A.

CONNECTICUT

Connecticut Home Economics Association. The program of the annual meeting at Norwich Free Academy on May 22 will include two program sessions besides the business session, a luncheon, and a tour of the new homemaking building. In the forenoon, Mrs. Ozias Dodge, director of the Slater Memorial Museum, will give an illustrated talk on "The Contribution of Art to the School and the Community," and in the afternoon Dr. Icie Macy will speak on "Nutrition of Infants and Children." The college and high school sections will for the first time hold separate sessions.

The Association is one of the organizations co-operating with the Connecticut Consumers' Council in planning a state-wide Consumers' Information Service.

In January, the council and chairmen of sections and committees met with Hazel Roach, field secretary of the A.H.E.A., at Connecticut College to discuss problems and plans.

Hartford Home Economics Club. Fourteen members completed the course of lectures on "Recent Trends in Nutrition" conducted by Dr. Arthur Smith of Yale.

Connecticut College. The guest speaker at the March meeting of the Home Economics Club was Dr. Esther Batchelder, director of home economics at Rhode Island State College, who discussed "Some Nutrition Studies: Their Scientific and Practical Significance."

The home economics department participated in the Connecticut Valley Student Scientific Conference held at the College on April 17.

DELAWARE

Delaware Home Economics Association. Activities of the Association this year have included representation on the Women's Joint Legislative Committee of the state and the organization of an affiliated homemakers' group. Reports from both groups were presented at the business session of the Association's annual meeting held on April 10 at Dover. Guest speakers at this meeting were Mrs. Katharine M. Ansley, executive secretary of the A.H.E.A., and Mary Rokahr of the U. S. Extension Service.

Delaware Vocational Association. The annual dinner meeting at the Hotel Richardson, Dover, on March 5 was the best attended to date. Marion F. Breck, state supervisor of homemaking education, is president this year. Ray W. Heim, director of vocational education in Delaware, is president of the National Association of State Directors of Vocational Education.

Women's College, University of Delaware. Stella Mather, formerly in charge of extension work in Nebraska and Arizona, is director of home economics during the absence of Amy Rextrew.

Public Schools. Recently compiled figures on the number of Delaware girls, outside of Wilmington, enrolled in home economics classes show a total of 3,227 in secondary schools. Of these, 1,654 are in the seventh and eighth grades and 1,574 are in the ninth, tenth, and eleventh grades, where the work is elective and vocational in type. These figures include 279 colored girls.

GEORGIA

Georgia State College for Women. This year the Home Economics Club has greatly enjoyed visits from Marie White of the U. S. Office of Education; Hazel P. Roach, field secretary of the A.H.E.A.; and Elizabeth Mayes, supervisor of vocational home economics in Georgia. "Contributions of Home Economics to Consumer Education" has been this year's theme.

Atlanta. In February, Hazel P. Roach spoke at a meeting of teachers and students of Fulton County and the Atlanta public schools. The North Fulton High School girls entertained her at luncheon, and Girls' High School, at tea.

Committees of junior and senior high school teachers of the Atlanta public schools are considering ways to improve family relationship units in the home economics curriculum.

Vocational Home Economics. Four district conferences for teachers of vocational home economics were held in January. Topics considered included: home visiting and home records as a means of learning student problems, units of work in homemaking, reports of co-operation, and integration or correlation with other high school departments and with the elementary schools.

Georgia has 62 home supervisors to help families with home management problems as part of its program in "What to Do, When to Do, and Where to Do."

IDAHO

Idaho Home Economics Association. District meetings were held in Boise on March 27 and in Pocatello on April 24, and one is scheduled for Moscow on May 1. The Omecon Club of the Southern Branch at Pocatello was in charge of the evening banquet there, and the Home Economics Club at the University of Idaho will have charge of that in Moscow. At all, interesting programs have been planned for the student club members.

Rural Resettlement. Dorothy Craven and Beatrice Stalker have been appointed home management specialists in the Resettlement Service.

Extension Service. Hattie Abbott, district home demonstration agent in the north-central district, has been granted a six-month leave of absence for study.

Vocational Home Economics. Lillian Navratil was one of the committee to confer with Mrs. Dora Lewis on the five-year program for vocational home economics.

Home Economists in Business. Home economics specialists, under the guidance of Helen Swanson, state supervisor for the Idaho Power Company, are making a drive for better lighting and have accomplished splendid results in southern and eastern Idaho.

ILLINOIS

Lewis Institute. Katherine E. Mayes spoke on "Educating for Happiness" before the home economics section of the Central Division of the Illinois State Teachers Association at Normal on March 12.

Mary Edna Golder, dietitian at St. Anne's Hospital and an officer in the Chicago Dietetic Association, gave a talk to the Home Economics Club on March 10; and on April 10, Shirley Larsen spoke on "Hospital Ethics for the Student Dietitian."

MacMurray College. While the home economics seniors were living in the home manage-

ment apartment from February 17 to March 22, they entertained the faculty and several guests from Springfield at a formal dinner.

University of Chicago. Dr. Lydia J. Roberts has returned from a month of travel in Mexico.

Isabel Noble is teaching foods at the University of Minnesota during the spring quarter.

Dr. Hazel Kyrk is at the U. S. Bureau of Home Economics in Washington for the spring quarter to aid in the analysis of recently collected data on purchases of rural and small city families.

University of Illinois. Dr. Esther McGinnis of the University of Minnesota spoke at the home economics convocation on March 17.

The home economics curriculum committee sponsored by the University of Illinois held a meeting on the campus the middle of March.

The institution management seniors took their annual trip to Chicago from March 29 to April 3. They visited hospitals, tearooms, wholesale houses, and the food and housing units at the University of Chicago and attended a banquet at the Wrigley Building Restaurant, at which Mr. Shircliffe, the manager, spoke.

Extension Service. With many counties of southern Illinois almost submerged by flood waters, home rehabilitation became an immediate problem for the Extension Service. To date, 31 mimeographed sheets on the house and its furnishings, clothing, health, and low-cost diets for emergency use have been prepared and distributed. Mrs. Helen T. Butner is now stationed in southern Illinois as home-adviser-at-large to assist with aftermath problems.

Vocational Home Economics. The annual meeting of the Illinois Vocational Association was held at Peoria on March 26 and 27. James S. Thomas, president of Clarkson College, Potsdam, New York, was the guest speaker at the banquet. Helen Moser, vice-president of the Illinois Vocational Homemaking Teachers, arranged the program for the home economics section.

During the recent flood in 11 of the southern counties of Illinois, the vocational homemaking teachers and students assisted the Red Cross and other agencies in caring for the refugees. They are now co-operating with rehabilitation programs.

H.E.W.I.B.'s. In January, Mrs. Mary Lowell Schwin was appointed home economics director of the Edison General Electric Appliance Company, Chicago.

INDIANA

DePauw University. Because of the University's centennial celebration this year, many of the departments are planning special exhibits for commencement week. The Home Economics Club girls are in charge of several displays for the home economics department.

Indiana State Teachers College. The home economics faculty met with the Home Economics Club council on February 15, when new committees were appointed.

Ivah M. Rhyan has leave of absence during the winter and spring quarters because of illness. Mrs. Anne M. Lee is acting head of the department, and Mrs. Lita Luebbers of Albion, Michigan, is teaching Miss Rhyan's classes.

Mrs. Caroline Kelso has charge of three junior high school classes in the home economics department of the Laboratory School.

Indiana University. Friends and students honored Elizabeth Sage at the time of her retirement by establishing a loan fund bearing her name. Although available to any worthy woman student, it is intended primarily for home economics students. Miss Sage has given the home economics department her excellent collection of textiles, laces, and period costumes.

Mary Beeman of Ball State Teachers College was the guest speaker at the annual joint banquet of the home economics clubs.

Extension Service. In 5 flooded counties of the state, much emergency material was sent to the home demonstration agents to help in the rehabilitation program. Despite the flood damage, the home economics extension program is going on much as planned.

Bedford. The N.Y.A. girls who are helping in the home economics department of the high school have re-covered a five-panel screen and made curtains for six windows.

During the first few days of the flood period, the cafeteria and kitchen of the high school were used to serve food to the refugees under the supervision of the Red Cross.

IOWA

Iowa Home Economics Association. At the meeting on April 10, round-table discussions were held on the following topics: the use of radio in home economics instruction, opportunities for personal improvement of students through home economics instruction, problems of student club advisers, measuring results of home economics instruction by paper and pencil tests, creating a school environment which exemplifies the fundamentals of home economics, the value of the home economics association to homemakers. Speakers at the general meeting were Frances Swain, Dr. Kate Daum, Dr. Paulena Nickell, and Mary Farris.

Iowa State College. Accompanied by Enid Sater, students majoring in household equipment enjoyed a 10-day field trip to Ohio and Chicago the last of March, which included visits to Nela Park, the American Stove Company, and the laboratories of the American Gas Association, the Hoover Company, Westinghouse Company, Frigidaire Company, Fire Underwriters, and Sears, Roebuck Company.

Hester Chadderdon and Beatrice Oleson were recently appointed members of the subcommittee on home economics of the Commission on Secondary School Curriculum sponsored by the Progressive Education Association. Miss Oleson has been offered one of three summer fellowships granted by the Association, which entails working for 5 weeks at Sarah Lawrence College with home economists and others on curriculum problems relating to home and family life.

KANSAS

Kansas Home Economics Association. The annual meeting was held in Pittsburg on March 19 and 20, with the home economics teachers of the city and of southeast Kansas as hostesses. Among the out-of-state speakers were Dr. Paul Popenoe of the Institute of Family Relations, Los Angeles; Mary Fedalia Taylor of the Rural Electrification Administration in Washington, D. C.; Dr. B. W. Fairbanks of the University of Illinois, whose topic was "Some Factors Affecting the Usage of Calcium"; and Catherine Justin, principal of the Girls' School at Delhi, India.

The Association is participating in an organized state-wide study of the curriculum and has appointed 5 committees to represent different levels of the school system. Their work this year has been largely to promote the interest of all home economics teachers in local study groups. Some time is to be spent in studying the present curriculum and its relation to pupil needs. Groups of teachers, including home economics teachers, are meeting regularly, and many groups of parents are considering the problem and their responsibility.

Kansas State Teachers College. Dr. Lillian D. Francis joined the home economics staff at the beginning of the second semester. Since taking the doctor's degree at Yale University, she had been research assistant there, working in the field of cancer research.

Topeka Home Economics Club. New England cookery, as exemplified at the last annual meeting of the American Dietetic Association, put in an appearance at the March meeting of the club. A class in institution management, under the supervision of Neosho Fredenburg, prepared and served the dinner as nearly "exactly right" as possible, using the recipes brought from Boston by Mrs. Ida Migliario.

KENTUCKY

Louisville Home Economics Association. Many members assisted in the flood relief work in Louisville during the recent emergency.

Eastern State Teachers College. A course entitled Home and Social Problems for Men was offered at mid-term.

The home economics department is cooperating with the county home demonstration agent in girls' club projects.

University of Kentucky. A second series of district conferences for home economics teachers is being held this spring at Lexington, Bowling Green, and Owensboro, to continue work on the evaluation of units of work.

Mary Barber of the Kellogg Company was the principal speaker at a dinner which her company gave in Lexington on February 24 and at which about 40 home economists were guests of the company.

University of Louisville. Since the homes of many students in the interior decoration class were damaged by the flood, the refinishing of

homes and furniture will be stressed in this class in connection with the rehabilitation program.

When the University celebrates its centennial this spring, the home economics department will assist in the entertainment of guests. It is also planning an exhibit for the Louisville Home Show which will contrast a kitchen of one hundred years ago with a modern one.

LOUISIANA

State Department of Education. Florence Fallgatter of the U. S. Office of Education spent a day in February at the Department and at Louisiana State University.

Clyde Mobley attended the Southern Regional Conference held in Birmingham from March 22 to 26.

Louisiana State University. The Graduate Club and the home economics department arranged for Dr. Helen Judy Bond of Teachers College, Columbia University, to lecture at the University Theater on March 5 and 6.

Dr. Freda Gerwin Winning and Mrs. Dorothy Day of New York University were February visitors.

Hazel Baker, who has leave of absence this semester, is taking a trip around the world.

Southwestern Louisiana Institute. Essae M. Culver, executive secretary of the Louisiana Library Commission, and Ellen LeNoir, secretary of the A.H.E.A., met with Agnes Brady, chairman of the committee on home economics education through libraries to plan a program called "Read for Home Happiness," described on page 317.

The annual short course was held at the Institute in connection with the Southwestern Louisiana Mid-Winter Fair. Mrs. Albert Smith, president of the Louisiana P.-T.A., was the guest speaker, and members of the third district P.-T.A. were guests at a tea given in her honor.

The nutrition class for men continues to be popular. It was repeated at their request.

Olivia Hentz, the Institute dietitian, was in charge of the formal dinner which the local branch of the A.A.U.W. gave in the new dining hall to celebrate its tenth anniversary.

Dr. Helen Judy Bond of Teachers College, Columbia University, was a guest of the home economics department in February.

MARYLAND

Maryland Home Economics Association. *Baltimore Section.* At a recent meeting, Dr. Manfred Guttmacher, psychiatrist for the Supreme Court of Baltimore, gave a most enlightening talk on "The Social Adjustments of the Child." The April meeting, for which "Consumer Buying" was the theme, was held in a Baltimore department store.

Student Clubs. The student club division, under the direction of Miss Dickerson, has made great progress. The state has been divided into 5 regions, and the clubs of each will hold a spring meeting. To date, 13 clubs have affiliated with the A.H.E.A.

Hood College. Mrs. Jean Scott Stauffer, an alumna and a graduate dietitian of Johns Hopkins Hospital, is instructor of diet therapy.

Mrs. Martha Carson, the dietitian, is supervising the students' work in institutional management and quantity cookery and is using the dormitory kitchens as a laboratory.

The publicity committee of the College has arranged for 50 figurines dressed by students in the historic costume classes to be displayed in department stores of several near-by cities.

University of Maryland. During the annual meeting of the State Horticultural Society at the University in March, Dean Marie Mount was on the committee that arranged the fashion show of clothes from Washington and Baltimore stores and floral arrangements by the Society.

Hazel Roach, field worker of the A.H.E.A., talked to the home economics seniors in February and accompanied them to Elkridge, where they were entertained by the Elkridge Home Economics Club.

MICHIGAN

Michigan Home Economics Association. The association celebrated its "Silver Anniversary" on April 30 and May 1 in Detroit. Excellent programs were arranged by Margaret Patterson and her committees for the section meetings. Dr. Ray Johns of the Council of Social Agencies and Dr. Marie Dye were banquet speakers.

Michigan State College. Mary O'Leary is substituting for Julia Tear, who is on leave of absence.

Mrs. Lydia Lynde has been appointed child development specialist in the Office of Co-operative Extension Work, Washington, D. C., the position formerly held by Lita Bane.

Michigan Public High Schools. The home economics department in Ann Arbor is co-operating in a study of the present curriculum and equipment in relation to progressive standards of home economics education and of the occupational opportunities in the community in relation to the need for more direct training for remunerative work.

To show the work in clothing selection now offered to boys and young men in the Flint schools, spring suits and top coats were included in the annual style show along with shirts, ties, and shoes showing good color harmonies.

Beatrice Comstock of the J. L. Hudson Company led the discussion on textiles at the institute held in March for the Grosse Pointe, Hamtramck, and Highland Park students. After tea the group visited the home economics and art departments of the Hamtramck schools.

Senior nutrition students in Holland planned menus for 60 children in the open-window and orthopedic departments, and the advanced food students prepared the meals.

MINNESOTA

Minnesota Home Economics Association. Membership increased from 77 to 250 in the year ending December 1936. This is due partly to the effective membership drive organized during the summer by Mrs. Evelyn Sandison, membership chairman.

Student Clubs. The organization of student clubs has progressed rapidly under the direction of Mabel Grimes of Willmar. Fifteen are already in operation, a club newsletter is circulated at regular intervals, and an all-state meeting was held at University Farm in April.

Constitution. A revision of the constitution, voted on in April, provides for the organization of groups in various sections of the state.

Schoolmen's Week. The Minnesota Home Economics Association sponsored a dinner meeting on the campus of the University on March 22, following the meeting of the home economics section of Schoolmen's Week. Rewey Belle Ingles spoke on "Trends in Current Literature"; and T. J. Hoffstrom, a local columnist, gave an illustrated talk. The Minnesota Dietetic Association were guests of the organization.

MISSISSIPPI

Mississippi Home Economics Association. "Newer Phases in Home Economics Education" is the theme of the spring meeting in Jackson on April 30 and May 1, the teachers' section stressing "Progressive Home Economics Education" and the extension section, "Child Development and Parental Education."

Mattie Grace King is chairman of the committee on standardization, simplification, and consumers' research, which has kept a written record of its work since 1934–35. That year the committee projects were studies of tomatoes and beans canned in Mississippi factories and of the wearability of shoes worn by high school and college girls in Mississippi. In 1935–36 an extensive bibliography on sources of consumer education materials was compiled. This year the committee has been making a study of grade labels on food products and clothing sold in Mississippi and has one planned on the color fastness and shrinkage of wash goods.

OUR CONTRIBUTORS

Genevieve A. Nowlin has taught homemaking courses in the Kansas City public schools for the past fifteen years. She holds two degrees from Kansas State College and has done graduate work at Columbia University.

Virginia Britton is a research assistant in consumption economics at Iowa State College. She received her A.B. at the University of Akron last June.

Melissa Hunter is head of the department of institution economics and director of dormitories at Oregon State Agricultural College, Corvallis.

Milicent L. Hathaway has been associate in home economics at the University of Illinois since September 1935. After receiving her Ph.D. in physiological chemistry at the University of Chicago, she subsequently served as graduate assistant in physiological chemistry there, as research assistant in physiology in the College of Medicine at the University of Illinois, and as an instructor of chemistry at Wellesley College.

Anna E. Hussey, supervisor of homemaking in the Kansas City (Missouri) public schools, is chairman of local arrangements for the Kansas City meeting of the A.H.E.A. in June.

Hazel P. Roach, the A.H.E.A.'s field secretary, was its official representative at the meeting of the Progressive Education Association which she here reports.

Zelta Rodenwold is director of women's programs at Station KOAC at Corvallis, Oregon. Her earlier experience was in the home economics editorial field in Oregon and Iowa.

Cleo Fitzsimmons is a member of the home economics extension staff at the University of Illinois. For two years her major responsibility has been to assist with the development of the work with rural youth which she describes in this issue.

Adella Eppel Ginter has been assistant professor of home economics at the University of Missouri since 1927. **Katie Adkins, Suzanne Davison, Sophie Pearlmutter, Margaret Shadduck, Margaret Partlow,** and **Thelma Pearson** were graduate students in that department when the studies reported in this issue were made and collected the data as part of the work required for the master's degree.